86 Memory Performance in Children with Duchenne and Becker Muscular Dystrophy

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Objective: There is limited and mixed research describing the memory performance of boys with Duchenne muscular dystrophy (DMD), a progressive disorder that affects the muscle and the brain, presumably due to the absence of dystrophin; however, the literature indicates either the existence of a selective deficit in verbal working memory, or more generalized impairment in both verbal and visual memory. Far less is documented about the neurocognitive profile of boys with Becker muscular dystrophy (BMD), a closely related neuromuscular disorder which allows for at least some functional dystrophin protein to circulate.
The Child and Adolescent Memory Profile (ChAMP) is a valid and widely used memory battery that has not been studied in either DMD or BMD. This study aimed to assess the verbal and visual memory performance in boys having either a DMD or a BMD diagnosis using the ChAMP. A working memory measure, the Digit Span subtest from the Wechsler Intelligence Scale for Children-Fifth Edition, was also included for comparison.
Participants and Methods: Twenty-one patients (Age *M* = 12.19 ± 3.60; 100% male; 76% DMD, 24% Becker) were selected from retrospective data collection of neuropsychological performance in children with neuromuscular disorders. Patients were recruited and assessed as part of a larger scale IRB-approved research study designed to better understand the neurocognitive and behavioral trajectories of boys with DMD or BMD with a complete neuropsychological battery.
Results: Independent samples *t*-tests revealed no significant differences between groups across verbal (DMD *M* = 88.71; BMD *M* = 100.80; *p* = .08), visual (DMD *M* =90.36; BMD *M* 93.60; *p* = .33), and working memory (DMD *M* = 84.69; BMD: *M* 82.60; *p* = .40) domains. In additional analyses, a one sample *t*-test comparing verbal and visual memory within DMD children revealed significantly worse verbal than visual memory scores (verbal memory *M* = 88.71; visual memory *M* = 90.36; *p* = <.001).
Conclusions: There were no significant differences between groups in verbal, visual, and working memory performance, though sample size was a significant limitation. However, based on a comparison of means, children with BMD appear to have stronger verbal memory skills than children with DMD. Furthermore, significant differences between verbal and visual memory within DMD children were observed, such that verbal memory skills were weaker. These findings add to the absence of literature on verbal and visual memory outcomes in children with DMD and BMD.

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Keyword 1: muscular dystrophy
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87 Idiopathic Autoimmune Encephalitis Influences Functional Recovery for Pediatric Patients Admitted to Inpatient Rehabilitation

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Objective: Anti-*N*-methyl-D-aspartate receptor encephalitis (ANMDARE) is a rare and progressive neurological autoimmune disease that disproportionally affects pediatric patients (Yeshokumar et al., 2022). Patients diagnosed with ANMDARE experience a host of neurocognitive and psychiatric sequelae, but data on the rate of recovery are generally mixed (Wilkinson-Smith et al., 2022). Misdiagnosis of ANMDARE is common and may complicate recovery given the progressive nature of the syndrome (Shimoyama et al., 2016); thus, knowledge of the etiology may result in enhanced resolution of symptoms. The current study assessed the rate of functional recovery for pediatric patients diagnosed with ANMDARE and admitted to an inpatient rehabilitation program. Specifically, we hypothesized that patients with idiopathic autoimmune encephalitis (IAE) would have a protracted rate of acute

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recovery compared to patients diagnosed with ANMDARE.
Participants and Methods: The current study included archival data of pediatric patients (*N*=10) aged 3-16 years (*M*=12.39, *SD*=4.97) admitted to an inpatient rehabilitation program at a metropolitan academic medical center between 2017-2022; of these patients, 7 were characterized as having IAE, 5 were female-at-birth, and 7 were of Hispanic/Latine origin. The Functional Independence Measure for Children (WeeFIM; Msall et al., 1994) domain scores (i.e., cognition, self-care, mobility, motor) were utilized to assess acute recovery. Welch's *t*-tests were analyzed separately at admission and discharge between etiological conditions (i.e., idiopathic vs. known) for each WeeFIM domain. Subsequently, change scores were calculated across the length of inpatient stay for each WeeFIM domain, and Welch's *t*-tests determined statistical differences in change scores between etiological conditions.
Results: Contrary to predictions, WeeFIM self-care domain scores were significantly higher at inpatient admission for patients with IAE (*M*=27.57) as compared to patients with ANMDARE (*M*=13.00), $t(7) = 1.95$, $p < .05$; trending differences were also found in admission scores on the WeeFIM motor domain between IAE (*M*=43.86) and ANMDARE (*M*=24.00) diagnostic groups, $t(6) = 1.71$, $p = .07$. Consistent with predictions, patients with ANMDARE generally had an appreciable acute recovery as compared to patients with IAE. Specifically, trending differences were found in change scores on the WeeFIM self-care domain between IAE (*M*=10.29) and ANMDARE (*M*=30.33) diagnostic groups, $t(6) = -1.64$, $p = .05$. Likewise, trending differences were found in change scores on the WeeFIM motor domain between IAE (*M*=21.43) and ANMDARE (*M*=47.67) diagnostic groups, $t(5) = -1.82$, $p = .06$. No significant or trending differences were observed at discharge.
Conclusions: Results have implications for optimizing the assessment and treatment of pediatric patients diagnosed with autoimmune encephalitis. Specifically, patients with ANMDARE may have a more severe initial presentation yet improved recovery course compared to patients characterized as idiopathic during their inpatient stay, particularly in motor and self-care functional domains; data highlights the importance of inpatient rehabilitation for patients diagnosed with ANMDARE. Current limitations include small sample sizes across diagnostic groups, likely due to the rarity of the disease. It is recommended that future research investigate the prognosis of pediatric patients diagnosed with autoimmune encephalitis longitudinally, at follow-up and across the lifespan.

Categories: Medical/Neurological Disorders/Other (Child)
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Keyword 2: pediatric neuropsychology
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88 Social Cognition and Information Processing Speed in Individuals with Multiple Sclerosis and Co-Morbid Diabetes: An Interim Analysis

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Objective: Multiple sclerosis (MS) is associated with cognitive and social cognitive deficits. Social cognition impairments may include difficulty with facial expression and emotion recognition. People with MS (PwMS) may also not be aware of their cognitive challenges as demonstrated through discrepant objective and subjective assessments. Research recently conducted in demyelinated mouse models demonstrated that metformin, a drug typically used to treat type II diabetes mellitus (DMII), promotes remyelination and reverses existent social cognition impairment by repressing the monoacylglycerol lipase (MgII) enzyme in the brain. We aim to translate this basic science research and are conducting a pilot study to determine if metformin improves social cognition in PwMS. This project will compare social cognition in those with MS and comorbid DMII who are treated with metformin and those who are not. For the purposes of this interim data

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