Basketball Ability Testing in Adults With Intellectual Disability

The purpose of this article was to verify (a) whether a basketball test battery could classify players with an intellectual disability and with low basketball skill level, (b) basketball abilities before and after an 8-mth training in players with intellectual disability in relation to low and moderate level skill players, and (c) variation of specific basketball abilities based on level of intellectual disability. Forty-one male basketball players with intellectual disabilities (17 moderate skill and 24 low skill; intellectual disability: 15% mild, 54% moderate, 29% severe, 2% profound) were assessed before and after training with a basketball test battery. The battery assessed four ability levels. Each level increased in difficulty and was characterized by fundamental skills (ball handling, reception, passing, and shooting). Moderate skilled players significantly improved in level III, in ball handling, reception, passing, and shooting scores. Low skilled players improved significantly in level II, in ball handling, reception, and passing scores. Ability levels were negatively correlated to level of intellectual disability. The authors found the basketball test battery to be useful for improving and monitoring training in both low and moderate skill players.


Review of Exercise on Airway Epithelia in Cystic Fibrosis

This review examined the impact of exercise for individuals with cystic fibrosis. Of specific interest was how exercise improves cystic fibrosis pathophysiological in dysregulation via purinergic and adrenergic pathways by describing the effects of adenosine monophosphate–activated protein kinase, atrial natriuretic peptide, and arginine-vasopressin on cystic fibrosis airway epithelia. Activation of adenosine monophosphate–activated protein kinase decreases Na+ absorption, increases airway surface liquid, and reduces oxidative stress and inflammation. Plasma atrial natriuretic peptide inhibits the basolateral Na+/K+-ATPase and may reduce epithelial water absorption. Airway epithelia respond to plasma arginine-vasopressin and secrete arginine-vasopressin in response to elevated bradykinin. Arginine-vasopressin stimulates the basolateral Na+/K+/2Cl⁻ exchanger, thereby increasing Cl⁻ secretion, reducing Na+ absorption, and promoting basolateral to luminal water flux. In addition, arginine-vasopressin may increase cilia beat frequency in airway epithelia via a Ca2+-dependent mechanism. The authors believe the mechanical and metabolic activities associated with exercise may be beneficial in preventing cystic fibrosis lung pathogenesis by improving airway hydration, mucociliary clearance, and reducing markers of inflammation.

**Reversal of Movement Dysfunction Associated With Peripheral Neuropathy**

Peripheral neuropathy is a highly prevalent and potentially debilitating condition linked to mobility, postural control impairments, and movement dysfunction in goal-directed movements. Although different exercises have produced functional improvements in peripheral neuropathy, recent evidence indicates exercises like Tai Chi can alter the damaged sensory system and facilitate recovery of mobility and balance, potentially reducing reliance on other people. Exercises such as Tai Chi and yoga have potential to improve peripheral nerve conduction velocities. Following training with Tai Chi, neuropathic people with type 2 diabetes experienced improved fasting blood glucose levels, balance, and functional mobility. Results from this review indicate potential for reversing the debilitating outcomes associated with having peripheral neuropathy. Engagement in certain exercises reveals at least short-term reversal of plantar sensitivity and improvements in balance and functional mobility in this population. The exact role of exercise training in preventing neuropathic disease progression resulting in long-term improvements needs additional study.


**Central Processing Deficits and ADHD**

This study examined the contribution of modal impairment in motor functioning relative to central processing deficits in participants with attention deficit/hyperactivity disorder (ADHD). Specifically, 24 children with ADHD subtype “inattentive” were compared to 41 others with ADHD subtype “combined” on measures of visual motor integration, visual perception, and motor coordination. The results indicated that both groups performed more poorly than their matched controls on the Visual Motor Integration Test and, further, that children in the subtype “combined” group performed more poorly than the “inattentive” subtype group suggesting more severe motor impairment in this group; however, both groups were equally impaired on both the visual perception test and the motor coordination test. The researchers concluded that these findings suggest that central processing deficits offer a better explanation of the differences in test results than a larger motor impairment. Researchers interested in the motor development and impairment of individuals with attention deficit/hyperactivity disorder might enjoy this article.

Adapted Physical Activity Practices Reviewed in Ireland Schools

The author examined adapted physical activity (APA) provision and practices in primary and special schools located in Ireland and provided information with regard to a variety of facets associated with the delivery of such activities. Participants consisted of those who taught or who were responsible for the delivery of APA or adapted physical education. Out of 406 questionnaires, 185 were returned. According to respondents, currently the ratio between teacher and students have been reduced, the role of Special Needs Assistants were seen to play a vital role in supporting the teachers’ delivery (especially with modifications), facilities have become more accessible with frequency and duration of activities improving greatly at the special schools, benefits have been seen as extremely high with regard to the student’s overall development, and there continues to be a lack of appropriate training for all personnel delivering APA. Ireland and the United States seem to have similarities with regard to APA related issues, and both countries strive to meet guidelines and standards (e.g., NASPE, WHO, USDHHS) in order for their students to be well-rounded individuals.


Children with Developmental Coordination Disorder: Modeling Techniques Explored

This study sought to explore potential mechanisms underlying motor coordination in children with Developmental Coordination Disorder (DCD), through using the paradigm of choice (switch press) reaction time (RT) to visual, auditory, and vibrotactile stimulus-response compatibility and incompatibility. Participants included 36 children (16 with DCD and 20 without DCD) ranging in age from 6-10 years. Initial examinations were performed on the children with DCD for qualification purposes. In order to examine RT under a variety of sensory conditions, the Lafayette O’Brien Reaction Time system was utilized. Children with DCD received extensive practice and simple RT trails were administered first and then followed by complex trails. A spatiotemporal mapping theory where motor difficulties of children with DCD are related to deficits in the central nervous system processing was supported as children with DCD demonstrated slower RTs for more complex conditions compared to those without DCD as they responded to visual, auditory, or vibrotactile stimuli. DCD varies in many ways with regard to motor deficits. The article helps emphasize that educators should understand how children process information in order to be better prepare successful experiences for clients or students.

Physical Activity Performance in Youth With Cerebral Palsy

The authors described ambulatory activity performances of youth with cerebral palsy (CP). Youth with CP (n = 111) were categorized into three levels according to the Gross Motor Functional Classification System (GMFCS), while youth who were typically developing (n = 30) were matched by sex and age. Measures consisted of functional level (GMFCS) and activity performance (Step Watch monitor). GMFCS level I consisted of youth with CP climbing stairs without upper-extremity assistance, while level III consisted of youth who were unable to climb stairs and able to walk only with an assistive device. The Step Watch monitor assessed step activity, frequency, and patterns within five days. A factorial analysis of variance was used to show mean differences amongst activity performance and functional levels. Youth with CP showed lower walking activity than their typically developing peers, while those in the GMFCS level I group demonstrated higher activity performances than those in levels II or III. The need seems to be relevant, in that those working with youth with CP should have adequate expectations and be provided a variety of physical activities to meet all functional levels.


Children With Cerebral Palsy: Psychomotor and Cognitive Function

The researchers depicted a relationship between intellectual and gross motor function of Iranian children with cerebral palsy (CP). Participants included 662 children (281 girls, 381 boys) ranging in age from 3-14 years. Measures consisted of the Wechsler Preschool and Primary Scale of Intelligence, Wechsler Intelligence Scale for Children-Revised, Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, and Gross Motor Function Classification System Expanded and Revised (GMFCS E&R). Descriptive analysis described participant demographics, participant clinical characteristics, proportions of activity performance, and types of CP within intellectual levels. Propositional odds ordinal logistics regression was used to determine the effect of gross motor function impairment. Results indicated that children with spastic quadriplegia had the lowest level of intelligence, boys showed lower intellectual scores than girls, and children at higher levels of intelligence and lower levels of the GMFCS E&R exhibited higher levels of gross motor functioning. There seemed to be a strong correlation between the level of gross motor and intellectual functioning in children with CP, a finding that may be of interest to professionals planning physical activities for children with CP.

Play Disabilities: Rethinking the Boundaries of Special Education

Play is an attitude or stance of intrinsic interest. We play because we want to play, not because we have to play. Playgrounds are places that attract this interest, allowing one to connect to their environment or “world.” For persons with disabilities, however, the ability to make connections to the world around them through play can be challenging. The goal of this essay was to reflect on the consequences of a more holistic understanding of both handicaps and special education; revealing the notion of play disabilities. In physical education, play disability is relational; viewed as localized or generic to the person’s environment around them. Regardless of the type of play disability or handicap, the ability to create and implement an appropriate curriculum for these individuals becomes problematic. More work is recommended examining the phenomenon of play disabilities and how to address this issue. The observations given in this essay may be of interest to APAQ readers as it offers further insight on the idea of play disabilities thus allowing one to rethink the boundaries of disability and special education.


Analysis of Compulsive-like Behavior by Individuals With Autism

Compared with other diagnostic features of autism, little research has been devoted to restricted and repetitive behavior; specifically, compulsive-like behaviors such as arranging objects in patterns or rows. This lack of research is problematic because more complex forms of restricted and repetitive behavior may be associated with negative outcomes such as interference with skill acquisition and social development. One approach to addressing problem behavior is to advance treatments based on its function. As such, the purpose of this study was to extend the functional analysis model to the assessment and treatment of arranging and ordering behaviors for three individuals with autism spectrum disorders. Results suggest that arranging and ordering and other compulsive-like behaviors for all three participants were found to be maintained by automatic reinforcement, and treatments based on function reduced these behaviors noticeably. The findings of this study may be of interest to APAQ readers as it offers further insight into the different ways in which functional treatments can positively affect persons with an autism spectrum disorder exhibiting restrictive and/or repetitive behaviors.

Physical Education for children With CHARGE Syndrome

CHARGE syndrome is an autosomal dominant genetic disorder that is typically caused by mutations in the chromodomain helicase DNA binding protein-7 (CHD7) gene. CHARGE stands for: Coloboma of the eye, Heart defects, Atresia of the choanae, Retardation of growth and/or development, Genital and/or urinary abnormalities, and Ear abnormalities and deafness. Though those features are no longer used in making a diagnosis of CHARGE syndrome, the name remains the same. Children with CHARGE syndrome often experience significantly delayed motor development, which affects their performance in many motor skills and activities. The purpose of this study was to determine the status of physical education provided to children with CHARGE syndrome. Results suggest that the physical education placement affects children’s success and parents’ satisfaction with regard to physical education. Additionally, children who had support staff, such as a paraeducator, had a more successful experience. The findings of this study may be of interest to APAQ readers as it offers further insight on the importance of improving physical education programs for persons with CHARGE syndrome thus increasing their involvement in class.


Paraprofessionals and Self-Determination

The authors surveyed 223 paraprofessionals to determine their perspectives on instruction to promote self-determination in students with high-incidence disabilities. They examined how important paraprofessionals think it is to teach self-determination skills, how frequently paraprofessionals work on these skills, and if there are paraprofessional characteristics that predict these ratings of self-determination. The paraprofessionals rated each skill as highly important to teach with problem solving, choice making, and decision making as the most significant skills. The paraprofessionals reported teaching each of the skills “sometimes too often” but taught problem solving and choice making most often. The only characteristics studied that related to importance of and actual teaching self-determination were a familiarity with the broader self-determination construct and opportunities to participate in professional development. With paraprofessionals playing a more significant role in education than in previous years and the emphasis placed on teaching self-determination, it is important to teach paraprofessionals about strategies to increase self-determination through either professional development or possibly the teachers themselves. Researchers could study the most effective ways to teach self-determination strategies to students and paraprofessionals in the physical education classroom.

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