Visual Acuity in Adults With Congenital Deafness

Congenital deafness has a relationship with vestibular and motor functioning. However, many studies have focused on children rather than adults. This study compared the relationship of vestibular functioning and visual acuity between adult athletes who were deaf and their age-appropriate peers in order to understand differences in balance and vision. Specifically, balance capability, vestibular functioning, and visual acuity functioning were compared among 19 adults with deafness to 25 adults with normal hearing. A one-leg standing test with eyes open and with eyes closed was used to assess balance while visual function was evaluated using a dynamic visual acuity test. While the two groups shared similar results on the balance test with their eyes open, the adults with deafness performed better than their peers with their eyes closed. The results of vestibular evaluation indicated the adults with congenital deafness lost input of information through visual perception when they closed their eyes.


Down Syndrome: Continuous Movements Benefit From Modeling Techniques

In this study, the researchers examined differences between discrete and continuous conditions in both unimanual and bimanual movements with three groups. Participants included 60 right-handed individuals with a mean age ranging between 6-21 years. There were 20 participants with Down syndrome (DS), 20 chronological age-matched (CA), and 20 mental age-matched (MA). Unimanual and bimanual drumming movements were the tasks and participants performed at self-selected amplitudes. Instruction types consisted of verbal (words), auditory (sounds), and visual (video). Analysis of variance (ANOVA) was performed on mean movement time and amplitude for the right hand only. Two separate mixed factorial ANOVAs were run with a between-groups variable of group and three repeated measures variables of task duration, instruction type, and task effector. Results indicated that discrete drumming was performed with smaller amplitudes and shorter movement time than continuous drumming, and unimanual drumming was performed with shorter amplitudes than bimanual drumming. Researchers found the instruction effects to be of particular importance, and it was inferred most practical, that those with DS performed tasks most efficiently and effectively with the use of visual instructions.

Structured Physical Activity and Attention Deficit Hyperactivity Disorder

The researchers sought to determine the benefits between structured physical activity (PA) and symptoms of attention deficit hyperactivity disorder (ADHD). Additionally, an effort was put forth to design a model that assessed the role of physical education on symptoms of ADHD. Participants (n = 17,565) were from the Early Childhood Longitudinal Study-Kindergarten (ECLS-K) and were followed through the fifth grade. These participants were children across the United States, equivalent in the number of boys and girls, and varied in ethnicity. Symptoms of ADHD were measured by four variables using a four-point frequency scale. Physical activity was measured by the times per week and amount of time per day physical education was offered to children. The association between PA and symptoms of ADHD was examined by a structural equation model. Results indicated that the standardized path developed showed as physical education increased for a child, there was an associated decrease in the symptoms of ADHD. Information from this study was intended to bring forth awareness of alternative methods (i.e., structured forms of PA), to pharmacological options, of treating symptoms of ADHD.


Standards for Reviewing Evidence Based on Single-Subject Designs

The What Works Clearinghouse (WWC) recently released pilot standards for evaluating Single-Subject Research Design (SSRD). The standards were developed in an effort to establish a rigorous database, standardize reviews, and to increase the quality of SSRD studies. Kratochwill et al. (2013) reviewed the pilot standards by the WWC for SSRD. The authors discussed the process by which eligible studies are reviewed and the criteria used to assess their design. From these criteria, studies are classified as one of the following: (a) Meets Design Standards, (b) Meets Design Standards with Reservations, or (c) Does Not Meet Design Standards. Evidence Criteria is then used to determine if evidence of a functional relationship between the independent and dependent variable exists. The studies are then classified as demonstrating one of the following: (a) Strong Evidence of a Causal Relation, (b) Moderate Evidence of a Causal Relation, or (c) No Evidence of a Causal Relation. The authors concluded that there were numerous issues that the WWC pilot standards for SSRD did not address and that they are a work in progress.


Six-Minute Push Test, Fitness, and Spinal Cord Injury

The six-minute push test is similar to the six-minute walk test in its ability to be used as a field test to measure overall fitness and aerobic capacity. In this study,
40 individuals (37% tetraplegia, 63% paraplegia) with spinal cord injury with the ability to self-propel a manual wheelchair completed an incremental arm crank peak oxygen consumption assessment and two six-minute push tests. Intraclass correlation coefficients to assess distance reliability exceeded 0.90 for the entire sample and the tetraplegia and paraplegia subsets. Individuals of high fitness propelled farther than low fitness peers. When used with binomial logistic regression, the six-minute push test demonstrated good sensitivity and specificity for correctly predicting if participants had low or high levels of fitness. Overall, the six-minute push test may be a useful tool for spinal cord injury clinicians and researchers. Six-minute push test distance demonstrated excellent reliability and was sensitive to differences in fitness level.


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