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Skill acquisition in students with and without Pervasive Developmental Disorder

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ABSTRACT

The purposes of this study were (a) to examine skill acquisition in field hockey of seven junior-high school students with PDD, who attended an inclusive class; and (b) to compare the degree of skill acquisition in field hockey of junior-high school students without disabilities who attend an inclusive class and those who attend a regular class.

The motor performance of the students with and without PDD was compared using specially designed field hockey skill tests, before and after a skill acquisition period of two 45-min sessions. Results indicated that (a) students with PDD significantly increased motor performance in the cone circling (CC) task ($p < .002$); and (b) the percentage gain score of students without disability in the regular class was significantly better in the CC task ($p < .02$) compared to that in the inclusive class, but did not differ in the slalom between cones task.

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Similar to many other countries, the Special Education Law (Law Register, 1988) in Israel suggests that children with special needs should be accepted in their natural environment and that teachers should be capable of taking care of each child while respecting his or her advantages and disadvantages, adapting their teaching methods to the child's special needs (Board of Education, 2003). This statement has endorsed the practice of inclusion across formal educational contexts in Israel. Inclusion is described as the philosophy and practice of supporting students with special educational needs in general education classes (Block, 2007). In terms of the recently advocated International Classification of Function and Disability (ICF) (World Health Organization [WHO], 2001), inclusion can be understood as reducing the social–environmental barriers to the participation of

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children with disability in educational settings. Including students with disability in regular physical education (PE) classes is increasingly advocated and practiced worldwide. In most Western countries the inclusion practice is supported with affirmative legislation and supportive educational material (e.g., Block, 2007; Ríos-Hernández, Rodríguez, Jané, & Gres, 2006; van Lent, 2006).

Particular attention has been paid to the inclusion of school age children with autism (see Gena, 2006; Lisboa, Butterfield, Reif, & McIntire, 1995; Schleien, Heyne, & Berken, 1988; Ward & Ayvazo, 2006). Autism Spectrum Disorder (ASD) is defined as a range of psychological disorders characterized by widespread abnormalities of social interactions and communication, as well as severely restricted interests and highly repetitive behavior (WHO, 2006). ASD typically includes the attributes of Autism, Asperger's Syndrome, Rett's Syndrome, Atypical Child Disintegrative Disorder, and Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS) (Lord, Cook, Leventhal, & Amaral, 2000). Incidence of ASD has recently been estimated at 6–6.5 per 1000 of the population, averaging a 4.3:1 male-to-female ratio. PDD-NOS is the most frequent sub-classification of ASD, accounting for about 5 per 1000 (Fombonne, 2005). PDD-NOS (for convenience, this will be referred to in the following sections as PDD) is a 'subthreshold' condition in which some – but not all – features of autism or another explicitly identified Pervasive Developmental Disorder are identified. While deficits in peer relations and unusual sensitivities are typically noted in PDD, social skills are less impaired than in classical autism (American Psychiatric Association, 2000). The quality of motor proficiency in fundamental and sport-related skills presented by most participants with ASD, including PDD, is described as poor compared to their typically developing peers (Berkeley, Zittel, Pitney, & Nichols, 2001; Ghaziuddin & Butler, 1998; Ghaziuddin, Butler, Tsai, & Ghaziuddin, 1994; Morin & Reid, 1985; Reid, Collier, & Morin, 1983). Due to their limited motor and social performance students with ASD have become a target for a variety of innovative methods for the teaching of motor skills and play during inclusive or exclusive learning environments (e.g., Boutot, Guenther, & Crozier, 2005; Reid & O'Connor, 2003; Reid, O'Connor, & Lloyd, 2003). In addition, considerable research has been conducted in order to explore the outcomes of such methods (e.g., Andrews, Becker, & Boswell, 1998; Collier & Reid, 1987; Lisboa et al., 1995; Reid, Collier, & Cauchon, 1991; Schleien et al., 1988; Schleien, Krotee, Mustonen, Kelterborn, & Shermer, 1987).

Although, the evidence-based research supporting inclusion practices of children with disabilities in physical activity is growing (see reviews in Block & Obrusníková, 2007; Hutzler, 2006), it still lacks both volume and depth. Only a few research articles were encountered in our literature review reporting performance outcomes of inclusive PE programs of participants with ASD. Lisboa et al. (1995) observed academic learning times (ALT-PE) of three children between the ages of 11 and 17, each placed in either regular, reverse integrated, or adapted PE classes during five consecutive sessions. ALT-PE outcomes of these individual case studies depicted greater participation in the adapted PE class. Schleien and colleagues (1988) observed social play interactions and motor skills of six children with autism between the ages of 4 and 12, integrated into a class of 50 children without disability. The authors interpreted their findings as revealing a trend toward reduction of inappropriate play behavior, but showing no change in motor skill.

One of the most often expressed criticisms of including participants with disability into regular PE classes is that the learning and performance of their classmates without disability might be disrupted (Aufsesser, 1991; Block & Zeman, 1996; Lavay & DePaepe, 1987; Walker & Bullis, 1991). Yet no evidence supports this notion. Two studies have compared outcomes of learning new motor skills between a class with and a class without inclusion of students with disabilities. Block and Zeman compared learning performances in basketball skills, including passing, shooting and dribbling, between two sixth-grade classes, one class included three students with severe disability and the other class comprised only of students without disabilities. Out of the three tests, two tests showed no difference in percentage of performance gained at the end of the teaching interval between the classes. In another study, Obrusníková, Block, and Válková (2003) compared knowledge and motor skill performance following a two-week volleyball unit between a fourth grade class which included participants with disability and a fifth grade regular class. Similar to the previous study mentioned, this study revealed no significant differences between groups with regard to the percentage of performance gained in the motor skill following the teaching unit.

Until now, no evidence-based research has tested the effects of including students with ASD in PE on their peers. Thus, current practices of including such students in PE classes require supporting

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