

Participation in Physical Activity, Fitness and Risk for Obesity in Children with Developmental Coordination Disorders (DCD): A Cross Cultural Study

Sharon Cermak^{1,3}, Noomi Katz^{2,4}, Mario Munoz³, Nirit Lifshitz^{4,2}, Aviva Must⁵, Naomi Weintraub⁴, Linda Bandini⁶, James Gleason⁶, Carol Curtin⁶

¹University of Southern California, Los Angeles, CA, United States, ²Ono Academic College, Tel Aviv, Israel, ³Boston University, Boston, MA, United States, ⁴Hebrew University of Jerusalem, Jerusalem, Israel, ⁵Tufts University School of Medicine, Boston, MA, United States, ⁶University of Massachusetts Medical School, Waltham, MA, United States

Introduction. Lifestyle is becoming more sedentary, physical activity is decreasing, and more children are overweight which is associated with health risks. Various factors may contribute to whether a child participates in physical activity including his motor coordination. Consequences of poor coordination involve exclusion from activities by peers and reduced motivation to participate.

Objectives. This U.S.-Israel cross-cultural study examined the relationship between children's motor coordination and their physical activity, sedentary behavior, fitness and obesity.

Methods. This study has been completed in the U.S. and is being replicated in Israel, with cross cultural comparisons planned.

Participants. U.S. participants were 30 children with Developmental Coordination Disorder (DCD) ages 7 through 11 and 42 typical children. Children with DCD had scores <15th% on the Movement Assessment Battery for Children.

Procedures. Activity level was determined using accelerometers worn for seven days. Fitness was assessed using the Strength test of the Bruninks Oseretsky Test of Motor Performance (BOTMP), and a six-minute-walk test (6MWT). Participation in physical activity was assessed by questionnaire. Weight status was determined by BMI z-score.

Results. (U.S.) Children with DCD spent significantly less time in moderate-vigorous activity than children in the control group. Significantly more parents in the DCD rated their child as (a) being inactive, (b) liking physical activity less than others his age, and (c) almost always choosing quiet activities. Parents of children with DCD reported that their child participated significantly less (fewer hours/week; less variety) in physical activities compared to the control group; the DCD group had significantly lower fitness scores on the BOTMP, walked less distance on the 6MWT and had a higher percentage of individuals with BMI z-scores >85th percentile .

Conclusions: Poor coordination places children at risk for obesity and poses serious health implications. It is hypothesized that similar results will be found cross culturally.

Contributions to the Practice/ Evidence-Base of Occupational Therapy: By identifying factors that place children with DCD at risk, occupational therapists can develop focused interventions to help children achieve more physically active lifestyles thereby promoting optimal health outcomes.

Suggestions for community, school, and home-based interventions will be presented.