Physical activity intervention (Movi-Kids) on improving academic achievement and adiposity in preschoolers with or without attention deficit hyperactivity disorder: Study protocol for a randomized controlled trial

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Background: The prevention of obesity and improvement of academic achievement in children are concerns of industrialized societies. Obesity has been associated with psychological disorders, including attention deficit hyperactivity disorder, whose prevalence has been estimated at 6.8% in Spanish children and adolescents. It is known that physical activity is positively related to academic achievement and negatively related to the risk of obesity in children. However, studies to test the effectiveness of physical activity interventions in improving academic achievement in preschool children are scarce and have some weaknesses that threaten their validity. Moreover, very few studies have examined their effectiveness in improving symptoms of attention deficit hyperactivity disorder. This paper outlines a two-year multidimensional preschool intervention (Movi-Kids) aimed at preventing obesity and improving academic achievement in children with or without attention deficit hyperactivity disorder. Methods/Design: Twenty-one schools from Ciudad Real and Cuenca, Spain, were randomized to intervention and control groups. In the first academic year, children in the third grade of preschool and the first grade of primary school in the intervention group received the Movi-Kids intervention. In the second academic year, schools were crossed over to the other group. The intervention included children, parents and teachers, and the school environment, and consisted of: (i) three hour-long sessions of recreational non-competitive physical activity after school, weekly, (ii) educational materials for parents and teachers addressing sedentary lifestyle risks and (iii) playground modifications to promote physical activity during breaks. Primary outcome
measures of this study were academic achievement (intelligence, cognition, memory, attention and perception), assessed by the Battery of General and Differential Aptitudes, and adiposity measures (body mass index, waist circumference, triceps skinfold thickness and body fat percentage). Secondary outcome measures were: attention deficit hyperactivity disorder risk, motor skills, health-related quality of life and sleep quality. These variables will all be measured in both groups at baseline and at the end of the first and second academic years. Discussion: It seems reasonable that an intervention to promote physical activity based on playground games will be useful for simultaneously improving academic achievement and controlling obesity. Trial registration: ClinicalTrials.gov NCT01971827. © 2015 Sánchez-López et al.
child
childhood obesity
cognition
controlled study
human
intelligence
memory
motor performance
multicenter study
multicenter study (topic)
perception
physical activity
primary school
quality of life
randomized controlled trial
randomized controlled trial (topic)
recreation
school health education
sedentary lifestyle
skinfold thickness
sleep quality
Spain
waist circumference
age
anthropometry
Attention Deficit Disorder with Hyperactivity
child behavior
clinical trial
crossover procedure
early intervention
education
educational status
female
health behavior
kinesiotherapy
male
methodology
motor activity
neuropsychological test
obesity
pathophysiology
Pediatric Obesity
preschool child
procedures
psychology
time factor
treatment outcome
Adiposity
Age Factors
Anthropometry
Attention
Attention Deficit Disorder with Hyperactivity
Child
Child Behavior
Child, Preschool
Cognition
Cross-Over Studies
Early Medical Intervention
Educational Measurement
Educational Status
Exercise Therapy
Female
Health Behavior
Humans
Intelligence
Male
Memory
Motor Activity
Neuropsychological Tests
Pediatric Obesity
Perception
Play and Playthings
Research Design
Spain
Time Factors
Treatment Outcome