Research in the Spotlight

GUARDIAN
exercise rehabilitation

Motor Skills and Exercise Capacity are Associated with Objective Measures of Cognitive Functions and Academic Performance in Preadolescent Children

The Objective:

To investigate relationships between exercise capacity, motor skills and cognitive functions, and to analyse how they relate to academic performance in mathematics and reading comprehension

What They Did:

- Data was collected from 423 children in third grade from 8-10 years old across 7 schools in Denmark
- The children participated in tests for motor skills, exercise capacity, body composition, performance in standardised mathematics and reading comprehension tests, physical examination, and were asked a series of questions relating to lifestyle, and their participation in organised sports

What They Found:

- Performance in both fine and gross motor skills was significantly associated with better performance in each of the cognitive tests
- Participation in organised sport had a positive correlation with semantic memory and reading but not mathematics
- Higher exercise capacity was positively correlated with spatial working memory accuracy and sustained attention spans
- Statistical tests showed that for each 100m run, the subjects scored higher in the mathematics test and the reading comprehension test
- No correlation found between body composition and cognitive test performance

Clinical Implications:

- Physical activity guidelines for children should take motor skills and motor skill development into consideration
- Further research is needed to determine if the academic benefits are associated with particular frequency, intensity or type of exercise
- Further research is needed to determine the nature of these relationships as children progress through school, puberty, and other significant developmental milestones.

Reference
Geertsen S et al. (2016) Motor Skills and Exercise Capacity Are Associated with Objective Measures of Cognitive Functions and Academic Performance in Preadolescent Children. *PLoS ONE*.