The Story

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Thursday, April 09, 2015

Data Simulation Project

Title : Aerobic fitness, micronutrient status, and academic achievement in Indian school-aged children.

Reference Links : http://www.ncbi.nlm.nih.gov/pubmed/25806824

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http://www.indiachildren.com/htwtc.htm

http://www.aarogya.com/family-health/childrens-health

http://www.unt.edu/rss/class/mike/5700/Code/R.html

http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0122487
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Abstract:

Aerobic fitness has been shown to have several beneficial effects on child health. However, research on its relationship with academic performance has been limited, particularly in developing countries and among undernourished populations. This study examined the association between aerobic fitness and academic achievement in clinically healthy but nutritionally compromised Indian school-aged children and assessed whether micronutrient status affects this association. 273 participants, aged 7 to 10.5 years, were enrolled from three primary schools in Bangalore, India. Data on participants' aerobic fitness (20-m shuttle test), demographics, anthropometry, diet, physical activity, and micronutrient status were abstracted. School-wide exam scores in mathematics and Kannada language served as indicators of academic performance and were standardized by grade level. The strength of the fitness/achievement association was analyzed using Spearman's rank correlation, multiple variable logistic regression, and multi-level models. Significant positive correlations between aerobic capacity (VO2 peak) and academic scores in math and Kannada were observed ($P < 0.05$). After standardizing scores across grade levels and adjusting for school, gender, socioeconomic status, and weight status (BMI Z-score), children with greater aerobic capacities (mL * kg-1 * min-1) had greater odds of scoring above average on math and Kannada exams (OR=1.08, 95% CI: 1.02 to 1.15 and OR=1.11, 95% CI: 1.04 to 1.18, respectively). This association remained significant after adjusting for micronutrient deficiencies. These findings provide preliminary evidence of a fitness/achievement association in Indian children. While the mechanisms by which aerobic fitness may be linked to academic achievement require further investigation, the results suggest that educators and policymakers should consider the adequacy of opportunities for physical activity and fitness in schools for both their physical and potential academic benefits.