Abstract

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School Based Intervention for Promotion of Fitness and Academic Performance in Third Grade Children

Purpose: This evidence-based project explored the effect of a school-based activity program, Activity Bursts in the Classroom, on Fitnessgram outcomes and academic measures. Activity Bursts in the Classroom was developed by David Katz, MD and was implemented in a Missouri school system with reported improvements in upper body strength and trunk flexibility measurement on Fitnessgram. The PICO question was: in third graders, how does a school-based physical activity program affect fitness levels and academic performance over a nine-week period within a school year?

Theoretical Rational: The revised Pender’s health promotion model provided the framework for influencing biological, psychological and sociocultural factors that lead to health promoting behavior. Gardner’s theory of multiple intelligences and incorporation of kinesthetic learning principles were included. A new conceptual model, Fox’s Cradle of Impact, was developed to illustrate the effect that a nurse practitioner can have on health behavior and Larrabee’s model for evidence based practice change guided the project.

Current Evidence: Analysis of the literature supported that increased physical activity can improve fitness levels and promote movement of BMI to a healthy level below the 85th percentile. One program was not singled out as the “best”. Different programs showed improved levels of fitness in different populations.

Participants: Fifty-five third graders in a rural Midwest public school system.

Methods: Teachers implemented ABC for Fitness in the Classroom for nine weeks. Fitnessgram measured aerobic capacity, muscle strength, endurance, flexibility and BMI at baseline and completion of the program. Aggregate academic measures included math-timed tests during the program, pre and post-program AIMS web testing, and STAR testing. The teachers were given an ABC for Fitness in the Classroom questionnaire at the end of the program for evaluation.

Outcomes: Significant finding were reported in the curl-up portion of Fitnessgram measures, but not in the mile run, push-ups, back-saver reaches or body mass index (BMI). AIMSweb testing showed significant changes in reading comprehension and math concepts. No significant findings were reported using the math-timed tests. Teacher surveys reported ease of the instructions and implementation of the program, but the most common barrier reported was lack of time in the classroom to incorporate five minutes of exercise per learning period to reach the 30-minute goal each day.
**Conclusion:** This project was practical, and affordable in implementation. Daily recess and twice a week physical education classes were part of the children’s activity and may explain teacher perceptions that incorporating 30 minutes additional was difficult and considered a negative aspect of the program. The teachers did support the philosophy of kinesthetic learning and planned to keep some of the activities ongoing, but no plans were made to measure and meet the 30-minute daily goal. In the future, implementing the program for longer periods and comparing third grade classes over three to five years could provide more information. Activity Bursts in the Classroom is a feasible and free program that could also be used in kindergarten through fifth grades which could be an entire elementary school program. Routine academic testing provides a valued measure for teachers and including them as measurement outcomes adds information to support or negate the mind-body connection. Ultimately, implementation of Activity Bursts in the Classroom will be challenging when teachers view inclusion of the program as taking increased time away from instruction rather than improving delivery and engagement with material.