Recent Research Supporting Components of Coordinated School Health

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Research Topics:
Coordinated School Health
Coordinated School Health Components and Academic Achievement
Physical Activity/PE and Academic Achievement, School Nutrition and Academic Achievement
School Nutrition- General, Physical Activity and PE Policies
School-Based Physical Activity and Obesity Prevention Policies

Coordinated School Health

Results of this study suggest that quality implementation of CSHP does not adversely impact school-level academic indicators over time. Findings suggest a better fit with school-wide accountability indicators than with specific content-based achievement indicators. http://www3.interscience.wiley.com/journal/122189497/abstract

This study documented the strength and comprehensiveness of one state’s written district policies using a coding tool, and tested whether these traits predicted school-level implementation and practices. Districts with stronger, more comprehensive policies were more successful in implementing them at the school level http://onlinelibrary.wiley.com/doi/10.1111/j.1746-1561.2012.00696.x/abstract

Coordinated School Health Components and Academic Achievement

This report reviews the research supporting a connection between academic achievement and seven health factors (vision, asthma, teen pregnancy, aggression and violence, physical activity, breakfast, and inattention and hyperactivity). http://www.equitycampaign.org/i/a/document/12557_EquityMattersVol6_Web03082010.pdf
Cusworth SW, Kerns SE, Lyon AR, Bruns EJ, Cosgrove TJ. Impact of School-Based Health Center Use on Academic Outcomes. Journal of Adolescent Health. 2009. In press. This study indicated a significant increase in attendance for school-based health center medical users compared to nonusers. In addition, grade point average increases over time were observed for mental health users compared to nonusers.

Diley J. Research Review: School Based Health Interventions and Academic Achievement. Healthy Students, Successful Students Partnership Committee. 2009. Washington State Board of Health, Washington Office of Superintendent of Public Instruction, Washington State Board of Health. Results from this study demonstrated that the more health risks a student has, the more likely he or she will be at “academic risk” (reporting an average grade of C, D or F). Researchers also found that a few single risk factors dramatically affected student success, one being drinking two or more cans of soda per day.


Forrest CB, Bevans KB, Riley AW, Crespo R, Louis TA. School Outcomes of Children with Special Health Care Needs. Pediatrics. 2011; 128(2); 303-312. The results of this study indicated that students with special health care needs (asthma, chronic pain, add, emotional or behavioral disorders and learning disabilities) had significantly lower academic achievement and lower motivation to do well in school, more disruptive behaviors, and more frequent experiences as a victim of bullying.


Meng Y, Babey SH, Wolstein J. Asthma-Related School Absenteeism and School Concentration of Low-Income Students in California. Preventing Chronic Disease. 2012; 9:110312. This study showed that students attending schools with the highest concentrations of low-income students were more likely to miss school because of asthma. Students from low-income families, younger students, those with more frequent asthma symptoms, or those taking prescription asthma medications also were more likely to miss school because of asthma.

This retrospective study examined implementation of the CSH program and its impact on 5 school-level academic indicators at 158 elementary schools in Delaware. The study demonstrated that schools with a high level of CSHP implementation had better school-level performance and progress ratings.

http://www3.interscience.wiley.com/journal/122189497/abstract


This study highlighted the association between adverse building conditions (mold, humidity, poor ventilation, vermin) and absenteeism.

http://ajph.aphapublications.org/cgi/content/abstract/100/9/1679


This study demonstrated that various components of a CSHP had statistically significant relationships with academic achievement. Students in states with policies promoting students’ health demonstrated higher academic scores and higher rates of high school completion.

http://jsn.sagepub.com/cgi/content/abstract/25/6/453

**Physical Activity/PE and Academic Achievement**


This study demonstrated that children participating in the Take 10! Program experience higher physical activity levels, increased time-on-task, and improved academic outcomes. In addition, BMI levels may be positively impacted.


This cross-sectional study used regression analysis to examine the relationship between fitness achievement (as measured by physical fitness tests passed during physical education) and academic achievement (as measured by passing scores on state achievement tests in mathematics and English). The odds of passing both tests increased as the number of fitness tests passed increased.

http://www3.interscience.wiley.com/cgi-bin/fulltext/121580226/PDFSTART (full text)

Centers for Disease Control. The Association Between School-Based Physical Activity, Including Physical Education, and Academic Performance.

This literature review covered 50 studies over 23 years. The majority of the studies in this review demonstrated a positive relationship between physical activity and academic performance and that adding time during the school day for physical activity does not appear to
take away from academic performance.

This study of 800 middle school students demonstrated strong associations between higher math and reading scores and various nutrition and physical activity behaviors.
http://psycnet.apa.org/journals/hea/30/1/91/

Delaware Students Who Are Physically Fit Preform Better in Math and Reading
This study analyzed physical fitness and education records of more than 80,000 students for from 2008-10. Students who were physically active and fit preform significantly better in math and reading, and also tend toward more disciplinary problems like absenteeism and suspensions.
http://www.delawarefirst.org/20928-study-delaware-student-fitness

In this study the implementation of a school based physical activity across the curriculum (PAAC) program demonstrated an impact on BMI. PAAC schools had significantly greater changes in daily PA and academic achievement scores.
http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6T80-4X3MR7M-3&_user=10&_rdoc=1&_fmt=&_orig=search&_sort=d&_docanchor=&view=c&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=f92c3b1c22d15fe75b255bffb12cdd5c

This large-scale randomized trial demonstrated that physically active academic lessons of moderate intensity improved overall performance on a standardized test of academic achievement by 6% compared to 1% decrease for controls. BMI increased less from baseline to 3 years in students with more than 75 minutes/week of physical activity across the curriculum (PAAC).
http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6WPG-522SHD0-4&_user=10&_coverDate=01%2F31%2F2011&_rdoc=1&_fmt=&_orig=gateway&_origin=gateway&_sort=d&_docanchor=&view=c&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=ee836758bb86956541e11052846cde7&searchtype=a

This study of 800 middle school students demonstrated strong associations between higher math and reading scores and various nutrition and physical activity behaviors.

Eveland-Sanders BM, Farley RS, Fuller DK, Morgan DW, Caputo JL. Physical Fitness and Academic Achievement in Elementary Students. Journal of Physical Activity and Health.
In this study of 3rd, 4th and 5th graders, associations were found between 1 mile run times and muscular fitness tests, and mathematics and reading/language arts standardized achievement tests.


In this Swedish study, academic achievement was associated with vigorous physical activity in girls and not mediated by fitness levels, whereas in boys only fitness was associated with academic achievement.

London RA, Castrechini S. A Longitudinal Examination of the Link Between Youth Physical Fitness and Academic Achievement. *Journal of School Health*. 2011; 81(7): 400-408.

This study demonstrated the correlation between students who are physically fit and unfit with disparities in both math and language arts tests scores.

New York City Department of Health and Mental Hygiene. Childhood Obesity is a Serious Concern in New York City: Higher Levels of Fitness Associated with Academic Achievement. *NYC Vital Signs*. 2009;9(1).

This study demonstrated that students with better physical fitness have higher academic test scores, and test scores increase with physical fitness scores across all weight categories.

Physically Fit Students Tend to Score Higher on Standardized Tests

A recent study from Louisiana demonstrates that students with cardiovascular fitness tend to score higher on standardized academic tests. The report notes that students with cardiovascular fitness may score up to 5% higher on standardized tests than children who are classified as unfit (average of 16 points higher in English Language Arts and average of 19 points higher in Math.


This study demonstrated that low aerobic fitness (as measured by a 1 mile run/walk test) predicts performance on standardized tests across ethnic groups.


This quasi-experimental crossover-controlled pilot study demonstrated that EatFit, a nutrition
education program, improved academic performance as measured by specific mathematics and English education standards.

http://www.jneb.org/article/S1499-4046(08)00692-1/abstract


This study of nearly 250,000 students demonstrated that fitness levels were strongly related to academic performance, with cardiovascular fitness having a dose-response relationship with academic performance, independent of other variables. The relationship peaked in middle school/early high school, highlighting the need to increase physical activity opportunities at this level.


**School Nutrition and Academic Achievement**


This study of 800 middle school students demonstrated strong associations between higher math and reading scores and various nutrition and physical activity behaviors.


**School Nutrition - General**


This study demonstrated that the availability of nutritious foods during school lunch periods was associated with healthier eating behavior among students who infrequently purchased a la carte items.


In this pilot study, 15 schools made voluntary changes to vending machines to increase the availability of healthier beverages and make passive marketing changes. Twelve out of 15 schools reported an increase in profits.

http://www.adajournal.org/article/S0002-8223(09)01556-9/abstract


This national survey of high school students demonstrated that 24.3% of high school students nationwide drank a serving of regular soda or pop, 16.1% a sports drink, and 16.9% a serving of another SSB daily.

http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6023a2.htm?s_cid=mm6023a2_w
This study demonstrated that nearly half of US elementary school students could buy unhealthy snacks—such as cookies, cakes and baked goods—outside of school meals during the 2009-10 school year.


This study demonstrated that after enacting a policy to restrict sugar-sweetened beverages in Boston public schools, consumption of soda and sugar sweetened beverages amongst high school students showed a significant decline. This decrease runs contrary to NHANES data that demonstrated no increase.


This study demonstrated that a policy restricting the availability of unhealthy snacks in elementary schools led to an increase in fruit and vegetable consumption among fifth-graders.


This study demonstrated no evidence that either the school breakfast or lunch program is contributing to rising rates of childhood obesity. It showed that school breakfast participation may be a protective factor.


The study finds that the NSLP leads to a significant increase in educational opportunity and attainment, but an insignificant increase in health levels from childhood to adulthood.


This study examined Connecticut’s implementation of their Healthy Food Certification policy and its positive relationship with reduction of competitive foods, while maintaining and even boosting participation in NSLP.


Taber DR. Chriqui JF. Powell LM, Chaloupka FJ. Banning All Sugar-Sweetened Beverages in Middle Schools: Reduction of In-School Access and Purchasing but Not

State laws that ban soda in schools - but not other sweetened beverages - have virtually no impact on the amount of sugary drinks middle school students buy and consume at school. [http://archpedi.jamanetwork.com/article.aspx?articleid=1107716](http://archpedi.jamanetwork.com/article.aspx?articleid=1107716)

**Physical Activity & Physical Education Policies**


Perna FM, Oh A, Chiriqui JF, Masse LC, Atienza AA. The Allocation of State Level PE Laws Positively Impact PE Time Allocation in US Public Schools. *American Journal of Public Health*. 2012; 102(8): 1594-1599. This study examined whether public schools in states with specific and stringent PE laws reported more weekly time in PE in the most recent SHPPS survey. The study confirmed that schools in states with specific requirement laws averaged over 27 and 60 more PE minutes/week at the elementary and middle school levels, respectively, compared with schools within states with nonspecific laws and over 40 and 60 more PE minutes per week, respectively, compared with elementary and middle schools in states with no laws [http://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2011.300587](http://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2011.300587)

**School-Based Physical Activity and Obesity Prevention Programs**

Barros RM, Silver EJ, Stein RE. School Recess and Group Classroom Behavior. 2009;123(2): 431-436. *The results of this study indicate that when children ages 8-9 are given at least one break or more of 15 minutes during the school day, their classroom behavior improved.* [http://pediatrics.aappublications.org/cgi/content/abstract/123/2/431](http://pediatrics.aappublications.org/cgi/content/abstract/123/2/431)

Beets MW, Beighle A, Erwin HE, Huberty JL. After School Program Impact on Physical Activity and Fitness: A Meta-Analysis. *American Journal of Preventive Medicine*. 2009; 36(6); 527-537. *This study examined 13 articles describing findings from 11 studies of after-school interventions. The evidence from these studies suggest that after-school programs can improve physical activity levels and produce other desirable changes in physical fitness, body composition, and blood lipid levels.* [http://www.ajpm-online.net/article/S0749-3797(09)00147-0/abstract](http://www.ajpm-online.net/article/S0749-3797(09)00147-0/abstract)

Dobbins M, DeKorby K, Robeson P, Husson H, Tinlis D. School-Based Physical Activity Programs for Promoting Physical Activity and Fitness in Children and Adolescents 6-18. *Cochrane Database of Systematic Reviews*. 2009; 1 Article No.: CD007651. *This study demonstrated a positive link between physical activity, attention and enhanced academic performance. Students’ performance was most enhanced in reading comprehension, with participating children scoring a full grade level higher in reading comprehension after*
physical activity than after a period of rest.
http://www.sciencedaily.com/releases/2009/03/090331183800.htm

In this study the implementation of a school based physical activity across the curriculum (PAAC) program demonstrated an impact on BMI. PAAC schools had significantly greater changes in daily PA and academic achievement scores.
http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6WPG-4WXYR5N-1&_user=10&_coverDate=08%2F06%2F2009&_alid=985993562&_rdoc=1&_fmt=high&_orig=search&_cdi=6990&_sort=r&_docanchor=&view=c&_ct=2&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=75987581d1bd030f58d3e1e0c8fd065

This article highlights a follow-up study in North Carolina after mandatory physical activity legislation was passed. School districts reported that implementation of the policy produced many positive results for student and staff.

This study followed over 1300 students in grades 4-6 for 2 years. The school implemented a School Nutrition Policy Initiative that included the following components: school self-assessment, nutrition education, nutrition policy, social marketing, and parent outreach. The intervention resulted in 50% reduction in incidence of overweight. Significantly fewer children in the intervention schools than the control schools after two years.
http://pediatrics.aappublications.org/cgi/content/abstract/121/4/e794

This meta-analysis examined 18 studies of primarily elementary children and found that school-based physical activity interventions did not measurably improve BMI nor body composition.
http://www.cmaj.ca/cgi/content/full/180/7/719

The results of this school-based effort to decrease calories and increase physical activity were mixed: while not leading to a long-term reduction in overweight or obesity, there was an overall reduction of BMI, insulin levels and waist size averages.

Katz DL, Cushman D, Reynolds D, et al. Putting Physical Activity Where it Fits in the School Day: Preliminary Results of the ABC (Activity Bursts in the Classroom) for Fitness Program. Prev Chronic Dis. 2010; 7(4). This school-based physical activity intervention resulted in improved physical fitness measures and reduced use of medications for asthma and attention deficit hyperactivity disorder.
This study demonstrated that children participating in the Take 10! Program experience higher physical activity levels, increased time-on-task, and improved academic outcomes. In addition, BMI levels may be positively impacted.

This study suggests that participation in physical education class can improve fitness levels and reduce obesity rates (as measured by BMI) among low-income teenagers.
http://archpedi.ama-assn.org/cgi/content/abstract/163/11/1014

This study explores whether characteristics of the U.S. schools are associated with student BMI and physical activity. The study found that relationships between the school physical activity environment and student BMI and physical activity were not uniformly strong.
http://www.sciencedirect.com/science?ob=ArticleURL&udii=B6T80-4WK3YJ5-7&user=10&coverDate=09%2F30%2F2009&rdoc=11&fmt=high&orig=browse&srch=docinfo(%23toc%235072%2332009%233999549996.8998%231439069%23FLA%23display%23Volume)&cdi=5072&sort=d&docanchor=&ct=13&acct=C000050221&version=1&urlVersion=0&userid=10&md5=41946d719d00c7900851ab7db9b27976

Texas Education Agency. Physically Fit Students More Likely to do Well in School, Less Likely to be Disciplinary Problems.
This recent study by the Texas Education Agency suggests that students who are more physically fit are also more likely to do well on the state standardized tests, better attendance, and have fewer disciplinary problems at school.

This study demonstrated a significant reduction in percentage of body fat at a relatively low cost for students who participated in the program.

Multidisciplinary/Other School-Based Programs to Reduce Obesity

Singh AS, Chin a Paw MJM, Brug J, Mechelen WV. Effectiveness of a School-Based Program on Body Composition and Behavior. Archives of Pediatric and Adolescent
This Dutch program included 11 interdisciplinary lessons in biology, physical education and environmental changes for 12-14 year olds. The intervention remained effective after 20 months in the areas of body composition, consumption of sugar-containing beverages and screen-viewing behavior.

http://archpedi.ama-assn.org/cgi/content/abstract/163/4/309


This study tested whether a combined environmental (installation of water fountains in classroom) and educational intervention solely promoting water consumption was effective in promoting overweight among elementary students. After the intervention, the risk of overweight was reduced by 31% in the intervention group.

http://pediatrics.aappublications.org/cgi/content/abstract/123/4/e661