

School Programs for Physical Activity to Prevent Obesity

Program description:

Programs in school that aim to increase children's physical activity and reduce sedentary behaviors include increasing knowledge about the benefits of physical activity; incorporating physical activity in the classroom with short periods of movement, exercise, dance, etc., interspersed between academic lessons; or increased time, frequency, and/or intensity of the physical education curriculum. Typically these programs are taught by classroom or physical education teachers who receive brief (< 1 day) training to deliver the intervention. The evaluations usually compare these programs to the standard health education and physical activity curriculum, which also provide opportunities to exercise and contain content on the importance of physical activity.

Typical age of primary program participant: 10

Typical age of secondary program participant: N/A

Meta-Analysis of Program Effects

Outcomes Measured	Primary or Secondary Participant	No. of Effect Sizes	Unadjusted Effect Sizes (Random Effects Model)			Adjusted Effect Sizes and Standard Errors Used in the Benefit-Cost Analysis					
			ES	SE	p-value	First time ES is estimated			Second time ES is estimated		
						ES	SE	Age	ES	SE	Age
Child obesity – body mass index	P	12	-0.07	0.03	0.04	-0.05	0.03	12	-0.05	0.03	22

Benefits and costs were not estimated for obesity prevention programs.

Discount Rates Applied to the Meta-Analysis

Type of Discount	Discount Rate
1- Less well-implemented comparison group or observational study, with some covariates.	0.5
2- Well-implemented comparison group design, often with many statistical controls.	0.5
3- Well-done observational study with many statistical controls (e.g., instrumental variables).	0.75
4- Random assignment, with some implementation issues.	1.75
5- Well-done random assignment study.	1.00
Program developer = researcher	0.5
Unusual (not "real-world") setting	0.5
Weak measurement used	0.5

Studies Used in the Meta-Analysis

- Donnelly, J. E., Greene, J. L., Gibson, C. A., Smith, B. K., Washburn, R. A., Sullivan, D. K., . . . Williams, S. L. (2009). Physical Activity Across the Curriculum (PAAC): A randomized controlled trial to promote physical activity and diminish overweight and obesity in elementary school children. *Preventive Medicine, 49*(4), 336-341.
- Ewart, C. K., Young, D. R., & Hagberg, J. M. (1998). Effects of school-based aerobic exercise on blood pressure in adolescent girls at risk for hypertension. *American Journal of Public Health, 88*(6), 949-951.
- Gortmaker, S. L., Peterson, K., Wiecha, J., Sobol, A. M., Dixit, S., Fox, M. K., & Laird, N. (1999). Reducing obesity via a school-based interdisciplinary intervention among youth: Planet Health. *Archives of Pediatrics & Adolescent Medicine, 153*(4), 409-418.
- Graf, C., Koch, B., Falkowski, G., Jouck, S., Christ, H., Staudenmaier, K., . . . Dordel, S. (2008). School-based prevention: Effects on obesity and physical performance after 4 years. *Journal of Sports Sciences, 26*(10), 987-994.
- Kriemler, S., Zahner, L., Schindler, C., Meyer, U., Hartmann, T., Hebestreit, H., . . . Puder, J. J. (2010). Effect of school based physical activity programme (KISS) on fitness and adiposity in primary schoolchildren: Cluster randomised controlled trial. *BMJ, 340*(c785). doi: 10.1136/bmj.c785
- Lazaar, N., Aucouturier, J., Ratel, S., Rance, M., Meyer, M., & Duche, P. (2007). Effect of physical activity intervention on body composition in young children: Influence of body mass index status and gender. *Acta Paediatrica, 96*(9), 1321-1325.
- Reed, K. E., Warburton, D. E., Macdonald, H. M., Naylor, P. J., & McKay, H. A. (2008). Action Schools! BC: A school-based physical activity intervention designed to decrease cardiovascular disease risk factors in children. *Preventive Medicine, 46*(6), 525-531.
- Robinson, T. N. (1999). Reducing children's television viewing to prevent obesity: A randomized controlled trial. *Journal of the American Medical Association, 282*(16), 1561-1567.
- Salmon, J., Ball, K., Hume, C., Booth, M., & Crawford, D. (2008). Outcomes of a group-randomized trial to prevent excess weight gain, reduce screen behaviours and promote physical activity in 10-year-old children: Switch-play. *International Journal of Obesity, 32*(4), 601-612.
- Simon, C., Schweitzer, B., Oujaa, M., Wagner, A., Arveiler, D., Tribay, E., . . . Platat, C. (2008). Successful overweight prevention in adolescents by increasing physical activity: A 4-year randomized controlled intervention. *International Journal of Obesity, 32*(10), 1489-1498.
- Sollerhed, A.-C., & Ejlertsson, G. (2008). Physical benefits of expanded physical education in primary school: findings from a 3-year intervention study in

Studies Used in the Meta-Analysis

- Sweden. *Scandinavian Journal of Medicine & Science in Sports*, 18(1), 102-107.
- Young, D. R., Phillips, J. A., Yu, T., & Haythornthwaite, J. A. (2006). Effects of a life skills intervention for increasing physical activity in adolescent girls. *Archives of Pediatrics & Adolescent Medicine*, 160(12), 1255-1261.