



Reviews on physical activity interventions with children (published between 2000 and 2007)

Gerda Jimmy

review reference	studies re-viewed	age group	main findings	recommendations given for interventions
Physical Activity				
Salmon et al. 2007 promoting PA participation	42 interventions with children 25 with adolescents controlled trials PA outcomes	ages 4-19	<ul style="list-style-type: none"> . of the 42 interventions with children: 30 (71%) at school, 8 family, 3 community, 1 primary care . classroom lessons at school not effective . classroom and PE lessons for children effective during PE and overall . PE alone effective for PA during classes but overall not known . PA during school breaks increased through providing equipment and marking school grounds but PA overall not known . Two studies applied whole-of-school approaches, one was successful the other wasn't . Activity breaks during class look promising for PA overall . combining school- and family-based components appears successful for at least some components of PA . combining school and community seems less successful . family-based interventions: inconclusive evidence . community-based interventions: inconclusive evidence 	. --

<p>Timperio et al. 2004</p> <p>strategies to promote PA</p>	<p>27: school-based (12) children out of school (10) adolescents out of school (5)</p>	<p>children, adolescents and young adults</p>	<ul style="list-style-type: none"> • <i>PA promotion in schools</i>: Success with interventions at schools was generally low. They appeared to be more effective if whole-of-school approaches were chosen including curriculum, policy, and environmental strategies. • <i>'out-of-school' setting for children</i>: Four out of 10 studies reported significant increases in PA. All of these four studies included some family contact. • <i>'out-of-school' setting for adolescents</i>: Two out of five studies found increases in PA. 	<ul style="list-style-type: none"> • --
<p>Cale and Harris 2006</p> <p>school-based PA interventions: effectiveness, trends, issues, implications</p>	<p>more narrative review bringing in studies and reviews to support the statements made</p>	<p>school age</p>	<p>Effectiveness:</p> <ul style="list-style-type: none"> • effects of class-room based health programmes on PA variable • classroom-based programmes to reduce screen time effective, but do not consistently correspond with increase in PA • PE class interventions successful during PE but not consistently for out-of-school PA as well • evidence cannot provide guidelines about types or aspects of programmes that are most effective <p>Trends:</p> <ul style="list-style-type: none"> • most PE studies focused on augmented PE time but sustainability questioned • most studies with upper primary children • lack of targeted interventions • growing interest and support for environmental approaches 	<ul style="list-style-type: none"> • focus on more individually oriented and unstructured activity to improve carryover to adulthood • allow degrees of choice as to what young people do and when they do it • introduce targeted programmes

<p>Jago and Baranowski 2004</p> <p>non-curricular approaches for increasing PA</p>	<p>9 studies</p>	<p>age 6-11 (2) age 5-7 (1) age 7-10 (1) age 8 (1) ages 9-11 (3) age 12-14 (1)</p>	<ul style="list-style-type: none"> • PA promotion during school breaks showed some effect • active travel to school, only one study found with no effect • extracurricular activities at school: participation rate needs to be improved • summer camps: no effects showed 	<ul style="list-style-type: none"> • --
<p>Kahn et al. 2002</p> <p>effectiveness of interventions to increase PA</p>	<p>32 studies on informational approaches 65 on behavioural approaches 14 on environmental and policy approaches</p>	<p>all ages but a lot of the studies were on children and adolescents</p>	<p>1) <i>Informational approaches</i> point-of-decision prompts: sufficient evidence that they are effective community-wide campaigns: <u>strong evidence</u> that they are effective mass-media campaigns: insufficient evidence to draw a valuable conclusion classroom-based health information: insufficient evidence to draw a valuable conclusion</p> <p>2) <i>Behavioural and social approaches</i>: school-based PE: <u>strong evidence</u> that they are effective college-based health education and PE: insufficient evidence to draw a valuable conclusion classroom-based health education focusing on reducing sedentary activities: insufficient evidence to draw a valuable conclusion family-based social support interventions: insufficient evidence to draw a valuable conclusion social support interventions in community settings: <u>strong evidence</u> that they are effective individually-adapted health behaviour change programmes: <u>strong evidence</u> that they are effective</p>	<ul style="list-style-type: none"> • community-wide health education campaigns • school-based PE • social support in community settings • multi-site, multi-component interventions • individually-adapted health behaviour change strategies • enhanced access to PA with informational outreach activities

			3) <i>Environmental and policy approaches</i> : Interventions included here are those that aim to increase PA by changing social networks, policies, the physical environment, resources, facilities, and laws. The reviewers found <u>strong evidence</u> that these types of intervention are effective	
Sedentary Activities				
DeMattia et al. 2007 reducing screen-based sedentary activities	12 controlled trials	children and adolescents: mean age 4 (1) mean age around 10 (10) mean age 14 (1)	<ul style="list-style-type: none"> • commonly reduced self-reported TV/video use • modest improvement of weight parameters. • school-based interventions promising • only few primary care based interventions to date 	<ul style="list-style-type: none"> • important to let the children choose themselves how they replace the TV/video time
Obesity Prevention				
Sharma 2006 school-based interventions for obesity prevention	11 school-based in USA or UK	age 5-7 (2) age 8-10 (2) age 7-11 (2) age 9-11 (2) age 12-17 (3)	<ul style="list-style-type: none"> • interventions for ages about 8-13 seem most successful • single component studies can be successful as well as multi-component comprehensive programmes • social cognitive theory is helpful • middle range duration interventions work well • parent involvement promising • addition of out of school activities useful • TV watching seems most modifiable behaviour followed by PA and nutrition behaviours • using existing teachers is most feasible and works well, using specialists improves quality 	<ul style="list-style-type: none"> • obesity prevention should target PA and nutrition • Interventions should try to use existing PA programme • need to support individuals and change policies and environments

<p>Stice 2006</p> <p>meta-analytic review of obesity prevention programs</p>	<p>46 controlled trials evaluating 61 different programmes with an outcome measure of body fat (mainly BMI)</p>	<p>children and adolescents up to age 22</p>	<ul style="list-style-type: none"> • 21% of programmes were effective in terms of effect in body fat measures (mainly BMI) intervention vs control • 84% were school-based programmes • average effect size across all studies was small • larger effect sizes related to: fewer weeks of intervention, targeting weight control alone (as opposed to various health behaviours), self-presenting samples, females • adolescents best effects followed by children, pre-adolescents less effect • not related to effect size was: parental involvement, delivery by intervention specialists (vs teachers), sedentary beh. reduction and mandated improvements in diet and exercise 	<p>• --</p>
<p>Bautista-Castaño 2004</p> <p>effectiveness of interventions in obesity prevention</p>	<p>14 controlled studies followed up for at least 12 weeks: 4 studies PA only 9 studies PA and nutrition 1 nutrition only</p>	<p>age 0-18: age 4-7 (2) age 8-10 (7) age 7-11 (1) age 10-13 (3) age unknown (1)</p>	<p>most successful strategies are:</p> <ul style="list-style-type: none"> • parental involvement strategies improve effectiveness • PA and nutrition together combined with behaviour modification strategies are most successful • decreasing sedentary activities improves effectiveness • interventions over 6 months to 1 year more successful than shorter ones 	<p>• --</p>

<p>Doak et al. 2006</p> <p>prevention of overweight</p>	<p>25 with anthropometric measurements of weight or adiposity</p>	<p>school-aged children (6-19 yrs): age 4-9 (1) age 6-13 (1) age 7-11 (1) age 5-7 (3) age 8-10 (6)</p> <p>age 8-12 (1) age 10-13 (10) age 12-15 (1) age 14-16 (1)</p>	<ul style="list-style-type: none"> • 17 effective studies (68%) • 3 studies effective for girls only and 2 studies for boys only • It is hard to say which aspects of an intervention are most successful, more successful interventions also had lower participation rates and often shorter study lengths • treatment studies show that family-based interventions combining education with behaviour modification are most successful 	<ul style="list-style-type: none"> • tailor interventions by gender, ethnicity and age • for obesity prevention include both PA and diet • aim at sustainability of the infrastructure • tailor to the circumstances of the target school • directly alter the physical or social environment
<p>Ritchie 2006</p> <p>Position statement of American Dietetic Ass. on interventions for paediatric overweight</p>	<p>42 family-based tertiary prevention studies 44 school-based primary and secondary prevention studies</p>	<p>about 40% of studies include 5-10 year-olds</p>	<ul style="list-style-type: none"> • evidence supports multi-component and family-based vs individual interventions • school-based interventions successful, especially at high school • lack of evidence on delivery of programme and length of programme • reducing screen-based activities seems successful but lack of evidence on other sedentary activities (homework/reading/computer use) 	<p>family-based tertiary prevention of overweight for 5 to 12 yr olds:</p> <ul style="list-style-type: none"> • multi-component interventions (diet, PA, sedentary act.) with behavioural counselling and parent training <p>school-based primary and secondary prevention: multi-component (diet, PA, sedentary act.) with parent involvement and environm. changes</p>

References

- Bautista-Castaño I, Doreste J, Serra-Majem L. Effectiveness of interventions in the prevention of childhood obesity. *European Journal of Epidemiology* 2004, 19:617-622.
- Cale L and Harris J. School-based physical activity interventions: effectiveness, trends, issues, implications and recommendations for practice. *Sport, Education and Society* 2006, 11(4):401-420.
- DeMattia L, Lemont L, Meurer M. Do interventions to limit sedentary behaviours change behaviour and reduce childhood obesity? A critical review of the literature. *Obesity reviews* 2007, 8:69-81.
- Doak CM, Visscher TLS, Renders CM, Seidell JC. The prevention of overweight and obesity in children and adolescents: a review of interventions and programmes. *Obesity Reviews* 2006, 7:111-136.
- Jago R, Baranowski T. Non-curricular approaches for increasing physical activity in youth: a review. *Preventive Medicine* 2004, 39:147-163.
- Kahn EB et al. The effectiveness of interventions to increase physical activity - A systematic review. *American Journal of Preventive Medicine* 2002, 22(4S):73-107.
- Ritchie LD, Crawford PB, Hoelscher DM, Sothorn MS. Position of the American Dietetic Association: Individual-, family-, school-, and community-based interventions for pediatric overweight. *Journal of the American Dietetic Association* 2006, 106(6):925-945.
- Salmon J, Both ML, Phongsavan P, Murphy N, Timperio A. Promoting physical activity participation among children and adolescents. *Epidemiologic Reviews* 2007, 29:144-159.
- Sharma M. School-based interventions for childhood and adolescent obesity. *Obesity Reviews* 2006, 7:261-269.
- Stice E, Shaw H, Marti CN, A meta-analytic review of obesity prevention programs for children and adolescents: The skinny on interventions that work. *Psychological Bulletin* 2006, 132(5): 667-691.
- Timperio A, Salmon J, Ball K. Evidence-based strategies to promote physical activity among children, adolescents and young adults: review and update. *Journal of Science and Medicine in Sport* 2004, 7(1):20-29.