

Author/Year	Description of the Participants/Setting	Intervention Components	Length of Intervention/ Follow-up	Primary Outcome Variable	Outcomes/Findings (mean ± SD or proportions)	P-value
Focus on obesity						
Robinson (1)	San Jose, California 192 3rd and 4th grade children (approximately 9 years old) two elementary schools, randomized	18 sessions (30–50 min each) classroom curriculum to teach students in intervention group to 'budget' television viewing time to 7 h weekly - Challenge to watch no television for 10 days at the end of curriculum - Electronic television time manager device placed in homes of intervention group students - Control school – no intervention	2 months/ 8 months	BMI(kg m ⁻²) Post follow-up: Tricep SF (mm) Pre: Post follow-up: Waist Circum. (cm) Pre: Post follow-up:	I: 18.38 ± 3.67, C: 18.10 ± 3.77 I: 18.67 ± 3.77, C: 18.81 ± 3.76 I: 14.55 ± 6.06, C: 13.97 ± 5.43 I: 15.47 ± 5.95, C: 16.46 ± 5.27 I: 60.48 ± 9.91, C: 59.51 ± 8.91 I: 63.57 ± 8.96, C: 64.73 ± 8.91	<i>P</i> = 0.002
Gortmaker <i>et al.</i> (2)	Boston, Massachusetts <i>n</i> = 1292 6–8th grade 10 schools randomized	Planet Health: - Interdisciplinary classroom curriculum with 32 core lessons incorporated into lessons in four major subjects and PE - Focus on decreasing sedentary behaviour, decreasing high fat foods, increasing fruit and vegetable intake, and increasing moderate to vigorous activity - Self-assessment, goal setting, evaluations, and incentives to teachers - Control schools – no intervention	1–2 years	% of students defined as obese	I: pre: 23.6% post: 23.7% C: pre: 21.5% post: 20.3% Odds ratio comparing % obese in intervention and control: Female: 0.47 Male: 0.85	<i>P</i> < 0.001
Mo-suwan <i>et al.</i> (3)	Southern Thailand 292 kindergarten children 8 classes randomized	- Superkids/Superfit school-based aerobic exercise program: 1 hour weekly PE plus 15 min walk and 20 min aerobic dance 3x weekly - Control classes – 1 hour weekly PE	29.6 weeks	% of students with triceps skinfold thicknesses >95th percentile	I: pre: 12.2% post: 8.8% C: pre: 11.7% post: 9.7%	<i>P</i> = 0.058 <i>P</i> = 0.179
Donnelly <i>et al.</i> (4)	Rural Nebraska grade 3–5 Two schools (intervention/ control school)	- School based obesity prevention intervention: 'Nutrition education: grade specific curriculum 'Physical Best' activity program: three weekly sessions 30–40 min, focus on individual, non-competitive activities 'LUNCHPOWER!' program: reduce energy, fat, sodium in school lunches. - Control group: existing lunch programme, team sports activity programme	2 years	BMI (kg/m ²) Baseline: Follow-up:	I: 17.9 ± 3.8 C: 18.1 ± 2.6 I: 18.9 ± 4.3 C: 19.3 ± 3.2	NSS

Appendix 2. Continued

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Focus on change in energy expenditure (physical activity)						
Sallis <i>et al.</i> (5)	Poway, California 955 4th and 5th grade children Seven elementary schools randomisation stratified by % minority in schools	• SPARK (Sport, Play, and Active, Recreation for Kids): • 3 weekly PE classes: 15 min health-fitness, 15 min skill-fitness activities • Behaviour change skills education: (self-monitoring, reinforcement, goal setting, stimulus control, problem solving) • Homework and monthly newsletters to parents, incentives for goal achievement - Two treatment arms – I(s): SPARK led by specialist, and I(t): SPARK led by classroom teacher • Control schools – existing physical education class led by untrained teacher	2 school years	Mean sum of skinfolds (mm) Boys, Pre: Post: Girls, Pre: I(t): 30.4 ± 1.53 Post:	I(s): 26.9 ± 3.72, I(t): 26.8 ± 1.33 C: 27.1 ± .087 I(s): 26.4 ± 1.38, I(t): 25.5 ± 2.40 C: 28.0 ± .090 I(s): 28.7 ± 2.14, C: 31.2 ± 1.28 I(s): 30.0 ± 0.61, I(t): 28.0 ± 1.22 C: 30.1 ± 0.56	 <

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Dwyer <i>et al.</i> (8)	Adelaide, Australia Phase 1: 7 schools, 5th grade (10 years old), 510 students three classes in each school randomized to one of three treatment conditions Phase 2: 2 years later, 216 5th graders assessed again in five schools	Phase I: Daily physical activity in two treatment groups ● I(F) classes – 75 min daily endurance focused PE ● I(S) classes – 75 min daily skill focused PE ● Control classes – 30 min of traditional PE three times weekly Phase II: repeated measurements on 5th graders 2 years later in schools that adopted a combination of I(F) and I(S)	14 weeks/2 years	Phase 1: Δ, sum of 4 skinfolds Phase 2: Sum of 4 skinfolds 1978: 1980:	C: 0.93 ± 0.46 I(S): 0.39 ± 0.33 I(F): −1.26 ± 0.40 Boys: 31.90 ± 15.0 Girls: 40.24 ± 15.4 Boys: 28.62 ± 11.88 Girls: 36.23 ± 14.0	<i>P</i> < 0.05 <i>P</i> < 0.05
Interventions focused on nutrition only						
Simonetti <i>et al.</i> (9)	Rome, Italy Children aged 3–9 years Three schools: one per treatment condition Could not find Simonetti & Sanarelli online. Found the other reference on a Berkely Intervention Study Reference List.	Two treatment arms, both focused on nutrition education: ● Multi-media Action (MA) school – distribution of printed materials, audiovisuals, discussion meetings with families and teachers ● Written Action (WA) school – printed material only ● Control school – no intervention	1 year	Δ in % obese, overweight or normal weight, using BMI values	Change in % Obese: MA: −12.2% WA: 5.3% C: 5.9% Change in % Overweight: MA: −12.1% WA: −2.3% C: 0.8% Change in % normal weight: MA: 7.2% WA: −0.7% C: −3.8%	not reported

Luepker <i>et al.</i> (10)	96 elementary schools in CA, MN, LA, TX 5106 3rd–5th grade students 28 schools randomized to school only intervention 28 schools randomized to school and family intervention 40 control schools	CATCH (Child and Adolescent Trial for Cardiovascular Health): • School intervention – Increase moderate to vigorous activity in PE, nutrition, health education: classroom curriculum 'Adventures of Hearty Heart and Friends', 'F.A.C.T.S. for Five 'CATCH' curricula, food service modification: 'Eat Smart' programme: decrease fat, sodium • Family involvement – 19 activity packets, family fun nights • Control schools – usual PE, school food service, and health education	3 years	BMI (kg m ⁻²) Baseline Post-intervention Δ in BMI from baseline to follow-up	I: 17.68 $\pm$ 3.23, C: 17.58 $\pm$ 2.90 I: 19.74 $\pm$ 4.03, C: 19.66 $\pm$ 4.35 I: 2.06 $\pm$ 2.02, C: 2.13 $\pm$ 1.93 <i>P</i> < 0.32
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Appendix 2. Continued

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Harrell <i>et al.</i> (11)	North Carolina 3rd and 4th grade 1274 children 12 schools, six urban, six rural. Randomization by school, stratified by urban/rural	CHIC (Cardiovascular Health In Children): • Twice weekly classroom curriculum on nutrition, exercise, smoking avoidance, peer pressure • Three weekly activity sessions: warm-up, 20 min of non-competitive aerobic activities, cool down. • Control schools: usual health instruction	8 weeks	Between group difference in: Δ BMI (kg m^{-2})	I vs. C: -0.04 ± 0.04	NSS
Fardy <i>et al.</i> (12)	New York City 346 9–12th grade students Randomization by classrooms Inner-city school	PATH (Physical Activity and Teenage Health) program: • 5 health promotion classes weekly – 20–25 min of step aerobics, jump rope, cycling, and/or resistance training, 5 min. 'mini-lecture' on exercise, nutrition, smoking avoidance, stress management, heart disease, cancer, or motivation • Control classes – usual PE class (usually volleyball)	11 weeks	Δ sum of triceps and subscapular skinfolds (mm) Δ BMI (kg m^{-2}) and Δ skinfolds	I vs. C: 0.05 ± 0.07 no specific values reported	NSS NSS NSS
Vandongen <i>et al.</i> (13)	Western Australia 971 children aged 10 to 12 years 30 schools randomized to five treatment conditions	Five treatment conditions: • Fitness (F) – six 30 min classroom lessons on the importance of physical activity, 15 min daily physical activity • School Nutrition (SN) – ten 1 h lessons to improve knowledge, attitudes, and eating habits • Home Nutrition (HN) – five nutrition messages via comic books delivered to students at school and including information for parents • School and home nutrition (S&HN) – combination of above described interventions • Fitness and School Nutrition (F&SN) – combination of above described interventions • Control schools – no treatment	1 school year	Pre- to Post- change in % body fat, triceps skinfolds (mm), subscapular skinfolds (mm), and BMI (kg m^{-2})	Δ in % body fat Δ in subscapular skinfolds Δ in tricep skinfolds Δ in BMI	NSS NSS $P < 0.05$ for F&SN vs. C NSS
Resnicow <i>et al.</i> (14)	Bronx, New York 1209 children, 1st to 6th grade Four schools: three assigned to receive intervention, one assigned control condition Houston, Texas, one control condition school Inner city, low SES, predominantly African American	'Know your body program' for CVD risk factor reduction: • Health education curriculum 30–45 min weekly • School cafeteria food modifications: increase fibre, decrease fat • Peer leader training, student health committees, food tasting parties, drug & nutrition • Poster and essay contests, student aerobics, special health lectures • Control schools – existing health, science curricula	2.5 years	BMI (kg m^{-2}) Pre intervention: Post intervention:	C: 17.9 I(low): 17.2 I(med): 17.3 I(high): 17.4 C: 19.1 I(low): 19.1 I(med): 19.6 I(high): 19.2	NSS

Appendix 2. Continued

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Lionis <i>et al.</i> (15)	Crete, rural 171 children aged 13–14 years Five schools: three assigned to treatment, two assigned to control condition	Greek modification of 'Know Your Body Program': • Health education curriculum, 10 sessions, 2 h each • Parental involvement • Control schools – no health education counselling	9 months (1 school year)	Δ in BMI (kg m ⁻²) Δ in triceps skinfold (mm)	I: 0.21 $\pm$ 1.43 C: 0.72 $\pm$ 0.97 I: -0.40 $\pm$ 2.77 C: -1.02 $\pm$ 2.72	 P < 0.05 NSS
Tamir <i>et al.</i> (16)	Jerusalem Israel 406 children, 1st grade, 7–9 years old 16 schools (eight control, eight intervention)	SEGEV program – Israeli version of 'Know Your Body': • Health education curriculum, 10 sessions, 12–20 h total instruction per school year • Parental involvement and community health fairs • Control group: no health education counselling	2 years	Post BMI (kg m ⁻²) residual scores, controlling for pre-BMI values	Jewish: I: Boys: 0.00 $\pm$ 1.10, Girls: -0.20 $\pm$ 0.93 C: Boys: 0.14 $\pm$ 0.91, Girls: 0.11 $\pm$ 1.05 Arab: I: Boys: -0.11 $\pm$ 0.77, Girls: -0.68 $\pm$ 0.21 Control: Boys: 0.27 $\pm$ 1.26, Girls: 0.31 $\pm$ 0.91	3-way ANOVA comparing Jewish, Arab, and Control students P < 0.01
Bush <i>et al.</i> (17)	Washington, DC 4th to 6th grade, nine schools Randomisation stratified according to tertiles of % of students eligible for federal school lunch programme Three schools randomized to control condition three schools each randomized to two treatment conditions	'Know Your Body': • Health education curriculum, 45 min periods twice weekly through out school year • Parental involvement • Two treatment arms: Full intervention – health education curriculum AND health passport; Partial intervention – health education curriculum and cholesterol screening results to parents • Control schools: no health education, no health passport	2 years	Between group difference for Δ in: Ponderosity index (kg m ^{-2.77}) Triceps skinfold (mm)	 0.23 $\pm$ 2.7 0.24 $\pm$ 10.6	 P = 0.07 P = 0.64
Walter <i>et al.</i> (18)	Bronx, NY (22 schools) Westchester County, NY (15 schools) 4th grade at baseline, 1769 children at follow-up Schools randomized to treatment or control condition: 14 treatment, eight control schools in Bronx Eight treatment, seven control schools in Westchester	'Know Your Body': • Health education curriculum, 2 h per week throughout school year	5 years	Between group difference for yearly Δ in ponderosity index (kg m ^{-2.77})	Westchester: I: 0.00 $\pm$ 0.1, C: 0.1 $\pm$ 0.1 Bronx: I: 0.1 $\pm$ 0.1, C: 0.2 $\pm$ 0.1	 NSS NSS

Appendix 2. Continued

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Killen <i>et al.</i> (19)	Northern California 1447 10th grade students from Four high schools Schools randomized within two school districts	Stanford Heart Health Program: • Three sessions per week for 7 weeks, as part of regular PE class • 20 classroom sessions, 50 min each, focusing on: physical activity, nutrition, cigarette smoking, stress, personal problem solving	7 weeks	BMI (kg m^{-2}) Pre: Post (2 month follow-up):	I: Boys: 21.6 ± 3.5 , Girls: 22.1 ± 3.9 C: Boys: 20.9 ± 2.7 , Girls: 21.4 ± 3.0 I: Boys: 21.7 ± 3.6 , Girls: 21.9 ± 3.8 C: Boys: 21.3 ± 2.7 , Girls: 21.4 ± 3.1	$P = 0.05$
Alexandrov <i>et al.</i> (20)	Moscow 4213 students (11 years old) Two administrative districts – assigned to treatment condition	Health education programme – • Distribution of health education materials, lecture courses, roundtable discussions, movies, and slide shows	3 years	Δ in BMI (kg m^{-2}) Δ in subscapular skinfold (mm)	No specific values available	NSS $P < 0.05$ in boys, NSS in girls
Vartiainen & Puska (21)	North Karelia, Eastern Finland 13 year old students (7th grade), Two schools & community intervention Two schools in another county served as no-treatment controls	North Karelia Youth Project: • Dietary intervention focused on decreasing fat, cholesterol, and increasing fibre • Free school lunches were altered using the above dietary guidelines as well	2 years	Δ in % with BMI >24 (kg m^{-2})	Not available	NSS
Tell & Vellar (22)	Oslo, Norway 10–15 year old students, 5th to 7th grade in six schools Four schools randomly assigned to treatment, two control schools	Oslo Youth Study: from 'Know Your Body' program • Programming to increase physical activity • Nutrition education, health passport (modified • Nutritionist home visits with parents, modifications to physical education	2 school years	Δ in weight (kg) Δ in BMI (kg m^{-2}) Δ in triceps skinfolds (mm)	I: Boys: 10.97 ± 4.62 , Girls: 8.15 ± 4.41 C: Boys: 11.07 ± 4.85 , Girls: 8.95 ± 4.57 I: Boys: 1.11 ± 1.35 , Girls: 1.38 ± 1.23 C: Boys: 1.07 ± 1.35 , Girls: 1.69 ± 1.41 I: Boys: -0.74 ± 3.88 , Girls: 1.74 ± 3.88 C: Boys: -0.94 ± 3.02 , Girls: 1.45 ± 3.37	Boys: $P = 0.834$ Girls: $P = 0.065$ Boys: $P = 0.796$ Girls: $P = 0.053$ Boys: $P = 0.552$ Girls: $P = 0.470$

I = Intervention, C = Control, NSS = not statistically significant.

References to Appendix 2

1. Robinson TN. Reducing children's television viewing to prevent obesity: a randomized controlled trial. *JAMA* 1999; **282**: 1561–1567.
2. Gortmaker SL, Peterson K, Wiecha J, Sobol AM, Dixit S, Fox MK, Laird N. Reducing obesity via a school-based interdisciplinary intervention among youth. *Arch Pediatr Adolesc Med* 1999; **153**: 409–418.
3. Mo-Suwan L, Pongprapai S, Junjana C, Puetpaiboon A. Effects of a controlled trial of a school-based exercise program on the obesity indexes of preschool children. *Am J Clin Nutr* 1998; **68**: 1006–1011.
4. Donnelly JE, Jacobsen DJ, Whatley JE, Hill JO, Swift LL, Cherrington A, Polk B, Tran ZV, Reed G. Nutrition and physical activity program to attenuate obesity and promote physical and metabolic fitness in elementary school children. *Obes Res* 1996; **4**: 229–243.
5. Sallis JF, McKenzie TL, Alcaraz JE, Kolody B, Faucette N, Hovell MF. The effects of a 2-year physical education program (SPARK) on physical activity and fitness in elementary school students. *Am J Public Health* 1997; **8**, 1328–1334.
6. Flores RE. Dance for Health. improving fitness in African American and Hispanic adolescents. *Public Health Rep* 1995; **110**: 189–193.
7. Worsely A, Coonan W. The First Body Owner's Programme: an integrated school-based physical and nutrition education programme. *Health Prom* 1987; **2**: 39–49.
8. Dwyer T, Coonan WE, Leitch DR, Hetzel BS, Baghurst RA. An investigation of the effects of daily physical activity on the health of primary school students in South Australia. *Int J Epidemiol* 1983; **12**: 308–313.
9. Simonetti D'Arca A, Tarsitani G, Cairella M, Siani V, De Filippis S, Mancinelli S, Marazzi MC, Palombi L. Prevention of obesity in elementary and nursery school children. *Public Health* 1986; **100**: 166–173.
10. Luepker RV, Perry CL, McKinlay SM, Nader PR, Parcel GS, Stone EJ, Webber LS, Elder JP, Feldman HA, Johnson CC, Kelder SH, Wu M. Outcomes of a field trial to improve children's dietary patterns and physical activity. *JAMA* 1996; **275**: 768–776.
11. Harrell JS, McMurray RG, Bangdiwala SI, Frauman AC, Gansky SA, Bradley CB. Effects of a school-based intervention to reduce cardiovascular disease risk factors in elementary school children: the Cardiovascular Health in Children Study (CHIC). *J Pediatr* 1996; **128**: 797–805.
12. Fardy PS, White RE, Haltiwanger-Schmitz K, Magel JR, McDermott KJ, Clark LT, Hurster MM. Coronary disease risk factor reduction and behavior modification in minority adolescents: the PATH program. *J Adolesc Health* 1996; **18**: 247–253.
13. Vandongen R, Jenner D, Thompson C, Taggart A, Spickett EE, Burke V, Beilin LJ, Milligan RA, Dunbar DL. A controlled evaluation of a fitness and nutrition intervention program on cardiovascular health in 10- to 12-year-old children. *Prevent Med* 1995; **24**: 9–22.
14. Resnicow K, Cohn L, Reinhardt J, Cross D, Futterman R, Kirschner E, Wynder EL, Allegrante JP. A three-year evaluation of the Know Your Body program in inner-city schoolchildren. *Health Educ Q* 1992; **19**: 463–480.
15. Lionis C, Kafatos A, Vlachonikolis J, Vakaki M, Tzortzi M, Petraki A. The effects of a health education intervention program among Cretan adolescents. *Preventive Med* 1991; **20**: 685–699.
16. Tamir D, Feurstein A, Brunner S, Halfon S, Reshef A, Palti H. Primary prevention of cardiovascular diseases in childhood: changes in serum total cholesterol, high density lipoprotein, and body mass index after 2 years of intervention in Jerusalem schoolchildren age 7–9 years. *Prevent Med* 1990; **19**: 22–30.
17. Bush PJ, Zuckerman AE, Theiss PK, Taggart VS, Horowitz C, Sheridan MJ, Walter HJ. Cardiovascular risk factor prevention in black schoolchildren. two-year results of the 'Know your body' program. *Am J Epidemiol* 1989; **129**: 466–482.
18. Walter HJ, Hofman A, Vaughan BA, Wynder EL. Modification of risk factors for coronary heart disease: Five year results of a school-based intervention trial. *N Engl J Med* 1988; **318**: 1093–1100.
19. Killen JD, Telch MJ, Robinson TN, Maccoby N, Taylor CB, Farquhar JW. Cardiovascular disease risk reduction for tenth graders. *JAMA* 1988; **260**: 1728–1733.
20. Alexandrov A, Isakova G, Maslennikova G, Shugaeva E, Prokhorov A, Olferiev A, Kulikov S. Prevention of atherosclerosis among 11-year-old school children in two Moscow administrative districts. *Health Psychol* 1988; **7**: 247S–252S.
21. Vartiainen E, Puska P. The North Karelia Youth Project 1978–80: Effects of two years of educational intervention on cardiovascular risk factors and health behavior in adolescence. In: Hetzel B, Berenson GS (eds). *Cardiovascular Risk Factors in Childhood: Epidemiology and Prevention*. Elsevier Science Publishers: New York, 1987, pp. 183–202.
22. Tell GS, Vellar OD. Noncommunicable disease risk factor intervention in Norwegian adolescents: the Oslo Youth Study. In: Hetzel B, Berenson GS (eds). *Cardiovascular risk factors in childhood: Epidemiology and Prevention*. Elsevier Science Publishers: New York, 1987, pp. 203–217.