

Behavioral and Social Approaches to Increase Physical Activity: Enhanced School-Based Physical Education

Summary Evidence Table - Intervention Results: Lesson Time and Proportion of Lesson Time Spent in MVPA

Author (year)	Outcome Measure	Criterion for MVPA	FU Period After Baseline	FU Lesson Time, Mean Min (SD)		Lessons per Week	FU Lesson Time in MVPA, Mean Min		FU Proportion of Lesson Time in MVPA, Mean % (SD) (n)		Type of Analysis Reported (p-value)	Subgroup Analyses
				IG	CG		IG	CG	IG	CG		
Fairclough and Stratton (2005)	Heart rate monitor (student)	≥50% of estimated heart rate reserve	5 weeks	76 (2.7)	82.4 (7.8)	1	31.0 ^b	23.8 ^b	40.8 (17.2) (n=12)	28.9 (21.8) (n=14)	ANCOVA (0.0008)	
	SOFIT (lesson)	≥walking					14.0 ^b	11.1 ^b	18.5 (4.2) (n=5)	13.5 (2.2) (n=5)	t-Test (0.047)	
Ignico et al. (2006)	Heart rate monitor (student)	≥150 BPM	No baseline measure (24 week int.)	30 ^a	30 ^a	2	16.3 ^b	7.3 ^b	54.4 (10.7) (n=68)	24.3 (10.7) (n=18)	ANOVA (<0.001)	
McKenzie et al. (1996)	SOFIT (lesson)	≥walking	52 weeks	29.6 (SE 0.6)	29.6 (SE 0.7)	3	15.4 ^b	12.5 ^b	51.9 (32.7) (n=648)	42.3 (30.0) (n=400)	Mixed-model ANOVA (0.0016)	There was no significant gender-by-intervention or race-by-intervention interactions for any of the outcomes.
McKenzie et al. (2001)				By teacher type: SP: 31.9 (8.2) CT: 24.8 (7.0)	By teacher type: SP: 32.7 (8.7) CT: 22.5 (7.5)		By teacher type: SP: 15.2 (5.9) CT: 13.1 (5.1)	By teacher type: SP: 12.2 (5.2) CT: 9.8 (5.1)	By teacher type: SP: 47.6 ^b CT: 52.8 ^b	By teacher type: SP: 37.3 ^b CT: 43.6 ^b		
McKenzie et al. (2004)	SOFIT (lesson)	≥walking	52 weeks	Year 1 35.7 (4.2)	Year 1 35.0 (4.0)	4.7	Year 1 19.0 (3.3)	Year 1 17.0 (2.1)	Year 1 53.2 (9.2) ^b	Year 1 48.6 (6) ^b (n=360) ^c	Randomized regression	Effect sizes were large for boys and

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				IG	CG		IG	CG	IG	CG		
				Year 2 37.4 (5.1)	Year 2 35.2 (4.3)		Year 2 19.5 (3.1)	Year 2 16.9 (2.1)	(n=351) ^c Year 2 52.1 ^b	Year 2 48.0 ^b	n models (0.02) ^d	moderate for girls, the increase in PA for girls was not statistically significant.
Quinn and Strand (1995)	Heart rate monitor (student)	≥156 BPM	No baseline measure (4 week int.)	35.7	35.4	3-4 ^a	17.7 (6.2) (n=76)	12.1 (6.6) (n=84)	49.6 (17.4) ^b (n=29)	34.2 (18.6) ^b (n=31)	t-Test (<0.05) ^d	
Rowlands et al. (2008)	Accelerometer (student)	≥192 CPM	1 week	60 ^a	60 ^a	2	Mod. 20.5 (3.8) (n=19) Vig. 7.9 (2.6) (n=19)	Mod. 15.9 (6.1) (n=19) Vig. 5.1 (3.8) (n=19)	47.4 (12.7) ^b (n=19)	35.0 (14.1) ^b (n=19)	ANOVA (<0.05)	No sex differences in PA level during PE classes or daily activity levels (data not shown).
Sallis et al. (1997)	SOFIT (lesson)	≥walking	104 weeks	26.2 ^b By teacher type: SP: 27.5 ^b CT: 24.8 ^b	21.1 ^b	2.4 ^b By teacher type: SP: 2.9 CT: 2.6 CG: 1.8	13.3 ^b By teacher type: SP: 13.9 ^b CT: 12.6 ^b	9.9 ^b	50.5 (15.3) ^b (n=70) By teacher type: SP: 50.5 ^b CT: 50.8 ^b	46.8 (35.1) ^b (n=33)	ANOVA (<0.001) ^d	
Scantling and Dugdale (1998)	Heart rate monitor (student)	≥155 BPM	No baseline measure (4 week int.)	35.5	34.3	1	5.3 (4.3)	0.2 (0.3)	14.8 (12.2) ^a (n=21)	0.6 (0.9) ^a (n=22)	t-Test (<0.001)	

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				IG	CG		IG	CG	IG	CG		
Simons-Morton et al. (1991)	Children's PA observation form (student)	Unclear	104 weeks	NR	NR	NR	14.8 (8.3)	3.1 (3.8)	36.2 (.04) ^c (n=171)	7.6 (9.0) ^c (n=159)	CIs as graphs	
Strand and Anderson (1996)	Heart rate monitor (student)	≥156 BPM	No baseline measure (4 week int.)	37.5	36.2	NR	15.8 (7.1)	14.1 (7.2)	42.1 (18.9) ^b (n=20)	39.0 (19.9) ^b (n=20)	t-Test (>0.05)	
Van Beurden et al. (2003)	SOFIT (lesson)	≥walking	78 weeks	21.2 (range 12-46 min)	21.2 (range 12-46 min)	NR	8.3 ^b	7.4 ^b	39.2 (25.9) (n=117)	34.7 (25.9) (n=117)	Hierarchical logistic regression (0.09)	Statistically significant predictors of MVPA: male student gender, male teacher gender in pre-post analysis.
Verstraete et al. (2007)	Accelerometer (student)	≥ 3 METs	85 weeks	50 ^a	50 ^a	2	33.5 ^b	30.3 ^b	67.0 (12.58) (n=190)	60.5 (19.27) (n=190)	Linear mixed methods (0.39)	No statistically significant differences found by student gender.
	SOFIT (lesson)	≥walking					28.2 ^b	20.8 ^b	56.3 (9.2) (n=19)	41.5 (8.5) (n=19)	Linear mixed models (0.001)	
Webber et al. (2008)	SOFIT (lesson)	≥walking	104 weeks	NR	NR	NR	NR	NR	42.2 (29.1) (n=215)	38.3 (29.1) (n=215)	Mixed model regression (0.025)	
Young et al. (2006)	SOFIT (lesson)	≥walking	35 weeks	45 ^a	45 ^a	5	21.1 ^b	13.7 ^b	46.9 (23.9) (n=40)	30.5 (23.9) (n=41)	ANCOVA (<0.001)	

^a Scheduled lesson time

^b Calculated

^c Estimated value

^d Based on a test of differences of the mean minutes of PA in PE lesson time, not proportion of lesson time

Derived from: Lonsdale C, et al. A systematic review and meta-analysis of interventions designed to increase moderate-to-vigorous physical activity in school physical education lessons. *Prev Med* 2013; 56(2): 152-61, Table 4.

Abbreviations:

CG, Control group

CPM, Counts per minute

CT, Classroom teacher

FU, Follow-up time

Mod, Moderate

MVPA, Moderate- or Vigorous-Intensity Physical Activity

NR, Not reported

NS, Not statistically significant

PA, Physical activity

SOFIT, System for Observing Fitness Instruction Time

SP, PE Specialist

Vig, Vigorous