

Supplementary Materials for

Highly-integrated programs for the prevention of obesity and overweight in children and adolescents: results from a systematic review and meta-analysis

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Main features of selected studies describing the 14 highly-integrated programs included in our analysis

Programme	Study period	Study model	Country (Region)	Age of participants (y)	Objectives	Outcomes	Key findings
FLVS (Fleurbaix–Laventie Ville Sante) Romon, 2009	1992-2007, 12 years	Longitudinal epidemiological study	France (Europe)	5-12	Knowledge-oriented and practical approaches to nutrition Improve in children's knowledge of the characteristics of foods and nutrients Improve children's healthy eating habits	BMI (Body Mass Index) Weight	Between 1992 and 2000, there was an increase in BMI and overweight prevalence From 2000 to 2004 there was a decrease in the prevalence of overweight which was more pronounced in girls BMI decreased significantly from 2002 to 2004, for both girls and boys Only parental social class and height were significantly related to BMI The crude overweight prevalence was significantly higher in the Control Town for both genders.
EPODE (Ensemble Prévenons l'Obésité Des Enfants, Together Let's Prevent Childhood Obesity) Borys, 2013	2008-2012, 4 years	Cross-sectional, quasi-experimental	France (Europe)	0-12	Political commitment Secure sufficient resources to fund central support services and evaluation Planning, coordinating and providing the social marketing, communication and support services for community practitioners and leaders Using evidence from a wide variety of sources to inform the delivery of EPODE and to evaluate process, impact and outcomes of the EPODE programme Improve eating habits Improve physical activity habits	BMI BMIz	The theory behind EPODE methodology reflects the multifactorial approach important in the prevention of childhood obesity. Childhood obesity prevention programmes which aspire to have a wide reach, may benefit from the insights into the EPODE methodology
VIASANO Vinck, 2015	3 years 2007-2010	Cross-sectional, quasi-experimental	Belgium (Europe)	3-4 5-6	EPODE study methodology and objectives	BMI BMIz	Decreased prevalence of overweight and overweight + obesity in the pilot towns

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Programme	Study period	Study model	Country (Region)	Age of participants (y)	Objectives	Outcomes	Key findings
POZ (Program Obesity Zero) Rito, 2013	6 months	Longitudinal quasi-experimental	Portugal (Europe)	6-10	Promote healthy eating and physical activity Decrease high sugar drinks Increase active play and decrease television-viewing time.	BMI BMI-for-age percentile Waist circumference	Reduction in waist circumference, mean BMI and BMI-for-age percentile at 6 months. Higher fiber consumption and an apparent decrease in sugary soft drinks intake. Improvements in physical activity levels and screen time < 2h/d
ROMP & CHOMP de Silva-Sanigorski, 2010 de Silva-Sanigorski, 2012	2004-2008 4 years	Repeat cross-sectional quasi-experimental	Australia (Oceania)	0-5	Promote healthy eating and physical activity Increase awareness of the key messages in homes and early childhood settings Decrease high sugar drinks and promote the consumption of water and milk Decrease energy snacks and increase consumption of fruit and vegetables Increased structured active play in kindergarten and day care Increase home/family-based active play and decrease television-viewing time.	Weight BMI BMIz Physical activity time Nutritional/healthy eating indicators Prevalence of overweight or obese	Obesity prevention interventions in children's setting can be effective; efforts must be directed toward developing context-specific strategies.
BAEW (Be Active Eat Well) de Silva-Sanigorski, 2008 Johnson, 2012 Moodie, 2013 Swinburn, 2014	2003-2006	Longitudinal quasi-experimental	Australia (Oceania)	4-12	Reduction of television viewing reduced consumption of sugar sweetened drinks, and increased water consumption. Reduce consumption of energy dense snacks and increased consumption of fruit and vegetables Increase active play after school and at weekends Increased active transport to schools	BMI BMIz Amount of hours watching videos, DVDs or TV. Amount of hours spent playing electronic games Dietary variables	Decreased BMIz in the intervention period.

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Programme	Study period	Study model	Country (Region)	Age of participants (y)	Objectives	Outcomes	Key findings
IYM (It's Your Move) Millar, 2011 Millar, 2013	3 years	Quasi-experimental, longitudinal cohort follow-up.	Australia (Oceania)	12-18	Capacity building Increase awareness evaluation Promote water Promote healthy breakfasts increase fruit and vegetable consumption Increase healthiness of school food Promote active transport to/ from school Increase participation in organized sports Promote acceptance of healthy body size and shape	Community Readiness To Change (RTC) Assessment of Quality of Life (AQoL) Pediatric quality of life inventory (PEDSQoL) BMI BMlz Proportion overweight/ obesity	Increased RTC in the intervention schools. Increase in capacity building outcomes Greater increases in capacity building led to greater decreases in prevalence of overweight/obesity.
APPLE (A Pilot Programme for Lifestyle and Exercise) Taylor, 2006 Taylor, 2007 Taylor, 2008	2003-2005, 2 years	Longitudinal quasi-experimental	New Zealand (Oceania)	5-12	Encourage all children to be a little more physically active every day Increase fruit and vegetable consumption Reduction of television time Short activity breaks in class	BMlz Blood pressure Television use Waist circumference Prevalence of overweight or obese Time spent in sedentary, light, moderate and vigorous activity	Increased participation in physical activity Slowed unhealthy weight gain in primary school aged children

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Programme	Study period	Study model	Country (Region)	Age of participants (y)	Objectives	Outcomes	Key findings
L4L (Living 4 Life) Utter, 2011	2006-2008, 2 years	Cross sectional quasi-experimental	New Zealand (Oceania)	12-18	<p>Improve dietary behaviours related to sugar sweetened beverages and breakfast consumption</p> <p>Increase physical activity during and after school</p>	<p>BMI</p> <p>BMIz</p> <p>Prevalence of overweight and obesity</p> <p>Body fat</p> <p>AQoL</p> <p>Pediatric quality of life inventory (PedsQoL)</p> <p>Lunch time activity</p> <p>After school activity</p> <p>Television use</p> <p>Soft drink and breakfast consumption</p> <p>School encouraging healthy eating and activity</p> <p>Healthiness of school canteen</p>	No significant differences in changes in anthropometry or behaviors between intervention and comparison schools
MYP (Ma'alahi Youth Project) Fotu, 2011	2005-2008, 3 years	Longitudinal quasi-experimental	Tonga (Oceania)	11-19	<p>Build the capacity of and to empower community</p> <p>Empower and strengthen the leadership skills around championing healthy lifestyle strategies.</p> <p>Raise professional, family and public awareness of the obesity epidemic and its effects.</p>	<p>BMI</p> <p>Body fatness</p> <p>AQoL-6D</p> <p>PedsQoL</p>	The intervention reach, frequency and dose varied widely across all activities, showing no consistent patterns.

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Programme	Study period	Study model	Country (Region)	Age of participants (y)	Objectives	Outcomes	Key findings
HYHC (Healthy Youth Healthy Communities) Kremer, 2011	3 years	Longitudinal quasi-experimental	Fiji (Oceania)	12-18	<p>To significantly reduce the proportion of adolescents who skip breakfast on school days</p> <p>To improve the healthiness of food at school</p> <p>To significantly decrease the consumption of energy-dense snacks and significantly increase consumption of fruit</p> <p>To significantly increase the proportion of adolescents living within walking distance to school to walk to and from school</p> <p>To support physical education teachers</p> <p>To significantly increase the amount of active play after school and on weekends</p> <p>To develop a programme for promoting healthy eating and physical activity within churches, mosques and temples</p>	<p>BMI</p> <p>BMIZ</p> <p>Percentage body fat</p> <p>AQoL</p> <p>PedsQoL</p>	The study failed to demonstrate the efficacy of a community capacity-building approach among an adolescent sample
Challenge! Black, 2010	2002-2004, 2 years	Randomized trial	United States (America)	11-16	<p>Prevent an increase in BMI category</p> <p>Prevent a decline in physical activity (PA) among the heaviest adolescents</p> <p>Enhance fat free mass among males.</p> <p>Reduce the intake of snacks and desserts</p>	<p>BMI</p> <p>Young/ Adolescent questionnaire (YAQ)</p> <p>Play-equivalent physical activity (PEPA)</p> <p>Bone density scan (DEXA Body Composition)</p>	Program was effective in preventing an increase in BMI category, in preventing a decline in PA among the heaviest adolescents, in enhancing fat free mass among males, and in reducing the intake of snacks and desserts
SUS (Shape Up Somerville) Economos, 2007 Economos, 2013 Folta, 2013	2002-2005 3 years	Longitudinal quasi-experimental	Massachusetts, United States (America)	6-8	<p>Increase energy expenditure.</p> <p>Increase healthiness of school food.</p> <p>Nutrition and physical activity lesson.</p> <p>Parent outreach and education.</p> <p>Local physician and clinic staff training.</p>	<p>Body Mass Index z (BMIZ)</p> <p>Sports and physical activity involvement</p> <p>Dietary intake and restrictions.</p> <p>Television viewing.</p> <p>Prevalence of overweight or obese</p> <p>Remission rate</p>	<p>Decreased BMIZ in the intervention period.</p> <p>Multi-level community-based model is promising in preventing childhood obesity</p>

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Programme	Study period	Study model	Country (Region)	Age of participants (y)	Objectives	Outcomes	Key findings
Let's Go! 5-2-1-0 Rogers, 2013	5 years, 2007-2011	Longitudinal quasi- experimental	Maine, United States (America)	6-15	<p>Encourage healthy choices for snacks and celebrations</p> <p>Participate in local, state or national initiatives that promote physical activity and healthy eating</p> <p>Include community organizations in wellness promotion</p> <p>Involve and educate families in initiatives that promote physical activity and healthy eating</p> <p>Encourage water and low fat milk instead of sugar-sweetened drinks;</p> <p>Discourage the use of food as a reward and use physical activity as a reward.</p> <p>Incorporate physical activity into the school day</p> <p>Collaborate with School Nutrition Program; and implement or strengthen a wellness policy.</p>	<p>BMI</p> <p>BMIz</p> <p>Change in parent awareness</p> <p>Healthy eating</p> <p>Active living</p> <p>Changes to promote sustainability</p>	<p>Findings show improvements from 2007 to 2011</p> <p>A multisetting community-based intervention with a consistent message can positively impact behaviors that lead to childhood obesity</p>