

Child TRENDS FACT SHEET

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WHAT WORKS FOR THE PREVENTION AND TREATMENT OF OBESITY AMONG CHILDREN: Lessons from Experimental Evaluations of Programs and Interventions

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OVERVIEW

Childhood obesity has become a major health problem.¹ Approximately 17 percent of U.S. children six to 17 years of age are obese—that is, their sex-and-age-specific Body Mass Index (BMI) is at or above the 95th percentile.² This proportion is two-and-a-half times higher than it was 25 years ago. Obesity during childhood often carries into adulthood,^{3,4} when it is associated with a wide range of health problems, including heart disease, type 2 diabetes, stroke, several types of cancer, osteoarthritis, and premature death.⁵

This fact sheet synthesizes the findings from multiple studies that implemented random assignment experimental evaluations to examine the impacts of various intervention strategies on child obesity outcomes. To identify programs that work and isolate the components of programs that contribute to success, we have synthesized findings from the Child Trends database of experimental intent-to-treat evaluations of social interventions for children and youth—LINKS (Lifecourse Interventions to Nurture Kids Successfully).⁶ All of the reviewed programs targeted child, adolescent, and/or youth samples—ranging from one to 19 years of age—and measured a combination of nutrition, physical activity, and/or weight loss outcomes.

While several themes emerge, as of yet, no one approach, setting, or activity stands out as generally effective. In fact, results from the synthesis suggest that programs with narrow goals and those that specifically target obese and/or overweight children are more likely to be effective at impacting at least one obesity-related outcome. Furthermore, success on some outcomes was linked to participant age: physical activity programs tended to be effective for adolescents 12-17 years of age, and weight loss programs tended to be effective for older adolescents 16-19 years of age. Program length played an important role in some cases, as long-term physical activity programs were successful. Additionally, a number of intervention strategies were associated with success on particular outcomes. Specifically, therapy/counseling was linked to improved nutrition and physical activity, while skill-building and requiring participants to track their progress were associated with increased physical activity. Many approaches are associated with mixed findings (some programs have impacts, while others do not), suggesting the need for further rigorous and targeted evaluations to identify effective programs.

WHAT WORKS⁷

LINKS currently includes 51 programs whose impacts on nutrition, on physical activity, and/or on weight loss have been experimentally evaluated. Findings are presented for each outcome separately, as well as across outcomes. Our review of these evaluated programs yielded the following cross-cutting and outcome-specific themes:

Cross-Cutting Themes

- **Most of the programs targeting overweight or obese children had impacts on at least one outcome.^a** Six out of eight nutrition programs,⁸ five out of seven physical activity programs,⁹ and nine out of 15 weight loss programs¹⁰ geared towards overweight and/or obese child populations were effective (see Table 1).
- **Programs with narrower goals were generally more successful in achieving the specific desired behavioral improvements.** Eight out of the 15 programs¹¹ that focused solely on nutrition, on physical activity, or on weight loss demonstrated an impact on the targeted outcome. In contrast, only two of 20 programs that *simultaneously* targeted nutrition, physical activity, and weight loss were successful at influencing all of these outcomes. (Specifics are provided below under “What Doesn’t Work.”)
- **Programs that implement a therapy/counseling component can be successful at improving child and adolescent nutrition and physical activity.** All four programs that provided therapy sessions for participants and their families were successful at improving nutrition outcomes;¹² and three of four programs were successful at improving physical activity.¹³ Therapy sessions were generally aimed at reducing relationship tension and negative family interactions.

Outcome Specific Themes

- **Physical activity programs designed for an adolescent population were often, but not always, effective.** Nine of the 15 programs designed to improve physical activity among adolescents had impacts on at least one outcome.¹⁴
- **Long-term programs that addressed physical activity were often successful.** Programs that were implemented for longer than six months were associated with increased physical activity among children and adolescents. Seven of the 12 long-term programs addressing physical activity had impacts on at least one outcome.¹⁵
- **Programs that teach skill-building were often associated with improved physical activity.** Teaching children and adolescents self-regulatory physical activity skills includes instructing them on how to incorporate exercise into their daily lives and how to make physical activity fun and personalized. As shown in Table 1, six out of 10 programs implementing these techniques were effective in improving physical activity in children and adolescents.¹⁶
- **Programs that required tracking progress were fairly effective at improving physical activity.** Of the seven programs that required participants to record their exercise activities, four, including [Project SPARK](#), [Reducing Sedentary Behavior](#), the [Bienestar Health Program](#), and a [Behavioural Weight Control Programme](#), led to improved physical activity among adolescents and children. The three remaining programs had mixed reviews.
- **Weight loss programs developed for youth were uncommon, but two of three had impacts on at least one outcome.** Though we were able to identify only three weight loss programs designed for youth (between the ages of 15 and 21), two of them, [SHAPEDOWN](#) and [Varying Maternal](#)

^a Reported impacts are those reported by the evaluators to be significant at the $p \leq 0.05$ level. Note that this review does not focus on the magnitude or duration of the impact, though this information is included in the LINKS program summaries.

[Involvement in a Weight Loss Program](#), had successful results at long-term follow-ups. The remaining program produced mixed findings.

MIXED REVIEWS¹⁷

Cross-Cutting Themes

- **Program setting did not play a clear role in success.** When programs were grouped by setting (i.e., school-, family-, provider-, home-, group-, and individually-based), there were no clear patterns of success or failure across the three obesity outcome categories (nutrition, physical activity, weight loss).
- **Programs for children in middle childhood had mixed results.** Programs geared towards children between the ages of six and 11 generally produced mixed results on nutrition (12 out of 23), physical activity (nine out of 23), and weight loss (12 out of 27) outcomes.
- **Short-term programs produced mixed results.** Programs that were six months or shorter in length led to mixed results for participants across all three obesity outcome types.
- **Developing nutrition, physical activity, and weight loss action plans were associated with mixed reviews across all three outcomes (nutrition, physical activity, weight loss).** Programs that teach participants how to develop action plans, such as exercise schedules and restricted diets, were not associated with consistently positive impacts for children or teens. With such widespread variation in impacts, it is difficult to draw conclusions about whether the development of action plans is an effective intervention strategy.
- **Implementing a knowledge-based curriculum produced mixed results.** Programs that disseminated topical knowledge during lectures were not consistently linked to success or failure across the three obesity outcome types. Twelve of 26 programs assessing nutrition, 11 of 23 programs assessing physical activity, and 11 of 25 programs assessing weight loss produced mixed results.
- **Programs with a parent component were associated with mixed reviews on nutrition, physical activity, and weight loss outcomes.** A number of programs involved parents in the intervention process by providing them with lectures, media material, and instructions for fostering their children's success. This strategy was linked to mixed results across obesity outcome types: nutrition programs (seven out of 13); physical activity (five out of eight); and weight loss programs (five out of 13).
- **Programs requiring participants to track progress on food consumption and weight loss—as opposed to tracking physical activity—were also linked to mixed results on relevant outcomes.** Programs that required participants to keep records of their food consumption (two out of seven) or weight loss progress (three out of nine) were neither successful nor unsuccessful at impacting nutrition or weight loss.
- **In general, many of the programs serving non-obese children were mixed or unsuccessful.** Fourteen out of 24 nutrition programs and 10 out of 22 physical activity programs produced mixed findings; and nine out of 18 weight loss programs were unsuccessful.

Outcome Specific Themes

- **Implementing school lunch menu modifications is not consistently associated with improved nutrition in children and adolescents.** Three of the eight programs that implemented this type of environmental change, including [High 5](#), [Heart Smart School Health Promotion](#), and the [Child and Adolescent Trial for Cardiovascular Health](#), were associated with improved overall nutrition for both children and adolescents. Most of the five remaining programs also had some positive impacts. However, two of the programs had impacts on some indicators of nutrition and not others, one program's effects were not long lasting, and another program had adverse impacts on a subsample of overweight children; one program did not improve energy, fat, and fruit or vegetable consumption.
- **Implementing mandatory exercise in physical activity interventions is not consistently effective at increasing physical activity for children or adolescents.** Out of the 19 programs that required participants to exercise, seven were successful at improving the children's physical activity.¹⁸ However, nine of these 19 programs produced mixed reviews, and three did not have any immediate or long-term impacts on exercise.
- **Providing weight loss incentives was not consistently associated with success or failure.** Programs that provided children and adolescents with incentives for losing weight were associated with mixed outcomes on weight loss indicators. Of the eight programs that employed the strategy, two were associated with success, including the [Behavioural Weight Control Programme](#) and the [Family-based Behavior Modification Program to Target Obesity](#), three with mixed reviews, and three with failure.

WHAT DOESN'T WORK¹⁹

Cross-Cutting Themes

- **Programs addressing nutrition, physical activity, and weight loss in the same program did not have positive impacts on all three of these outcomes.** We identified 20 programs that addressed all three types of obesity outcomes, and only two of them, the [Behavioural Weight Control Programme](#) and an untitled [Lifestyle-Focused Physical Activities Intervention](#), had positive impacts on all three outcomes: child nutrition, physical activity, and weight loss; eight programs produced mixed results.
- **Obesity programs geared towards young children were not generally effective.** Though only a handful of programs were developed for an early childhood population (children five years or younger), there were patterns of failure across nutrition, physical activity, and weight loss outcomes. As shown in Table 1, two of four nutrition programs, three of three physical activity programs, and two of three weight loss programs failed to have any positive impacts on children's short-term health.

Outcome Specific Themes

- **Long-term weight loss programs were, in general, not effective.** Of the 15 programs addressing weight loss that ran for longer than six months, seven were unsuccessful, six were mixed, and three had impacts.

DISCUSSION

Interpretation of Results. The ideal format for a successful, comprehensive obesity prevention program is still unclear. A variety of program components and settings can combine in order to produce positive outcomes, and specific factors have been isolated as successful contributors to improving nutrition, to affecting physical activity, or to improving weight management. However, it appears that researchers and practitioners need to develop comprehensive programs that use specific techniques to target each of the three indicators of obesity.²⁰

Based on patterns across 51 random assignment intent-to-treat studies examined for this synthesis, it appears that the ideal obesity program should have a targeted focus. Programs that focus on only nutrition, physical activity, or weight loss tend to be more successful than those that simultaneously focus on all three outcome categories. This finding aligns with previous research indicating that broad-based cardiovascular risk-reduction programs targeting multiple health behaviors have not been effective at reducing obesity rates in children.²¹ This is not to imply that programs successfully targeting all three obesity outcomes are implausible. Rather, this synthesis may suggest that each outcome needs to be targeted in a highly specified manner, using practices found to be effective for that particular outcome.

Programs that are targeting one outcome should consider the strategies that are associated with success on that specific indicator. For example, successful physical activity programs have generally implemented skill-building techniques, required participants to track their own exercise progress, and may have a therapy or counseling component. While intervention strategies should be targeted for the desired outcome, implementation settings can vary; both family- and school-based settings can be effective for impacting child nutrition, physical activity, and weight loss.

Our analyses also suggest that overweight and obese children tend to benefit from nutrition, physical activity, and weight loss programs, while impacts are not found in general populations. One explanation for this finding is that overweight and obese children have more to gain from the interventions and are, therefore, more motivated to engage in and benefit from the program content.²² Additionally, children at healthy weights have little room for change and may have already been engaging in healthy behaviors prior to participation in the programs.²³

Regarding age groups, obesity programs were not generally effective for young children, had mixed reviews for those in middle childhood, and were sometimes effective for adolescents and youth. Previous researchers have hypothesized that obesity prevention programs are more effective when they are delivered to middle or high school students versus younger children.²⁴ Young children likely find it difficult to grasp the concepts and skills that are presented in obesity interventions. Furthermore, they have less control than older children over the foods they consume, as many of their meals are dictated by their schools and parents.²⁵

Analyses of program length did not reveal consistent success patterns. While short-term programs (those implemented over a time period of six months or less) were generally associated with mixed results, there was inconsistency among long-term interventions. Long-term physical activity programs were successful, but long-term weight loss programs were not. (A meta-analysis on the effectiveness of childhood obesity programs found that relatively brief programs were more successful than lengthy interventions;²⁶ however, these analyses only examined success in terms of weight loss outcomes, making our findings consistent with that study.) Our results regarding the success of long-term physical activity programs may provide practitioners with new information regarding the ideal length of time to implement a program, depending on its targeted outcome.

It should also be noted that programs with initial short-term impacts that faded by the long-term follow-up points (i.e., one year or more after the intervention) were categorized as having “mixed reviews.” In contrast, programs that were successful at short-term follow-ups (i.e., between the conclusion of the intervention and up to one year after) were categorized as having “worked.” Without a long-term follow-up assessment, it is impossible to know whether or not these programs have lasting impacts; therefore, we can only categorize their success based on the available information. However, readers and practitioners seeking programs with longer-term impacts should interpret results from studies that lack a long-term follow-up with caution.

Promising Practices. A number of strategies were associated with mixed reviews, including formulating action plans, mandatory physical activity, knowledge-based curricula, parent components, school lunch menu modifications, providing incentives, and requiring participants to log and track their progress. We have identified these as promising practices. Some strategies, such as school lunch menu modifications and providing incentives, have not been thoroughly evaluated. In the future, these strategies may be associated with success. Other, more thoroughly analyzed strategies, such as knowledge-based curricula and mandatory exercise, may work under particular conditions or in association with other factors.

NEEDED RESEARCH

Evaluations to date of physical activity programs have enabled us to begin to identify the critical factors for improving exercise habits; but this is only one part of the puzzle. Further research must be conducted to identify the individual and environmental causes of weight gain and poor nutrition. Research can isolate these factors by further evaluating the effectiveness of techniques that have gotten “mixed reviews,” such as formulating action plans and school lunch menu modifications. Longitudinal data analyses utilizing health data from primary or secondary sources would also be informative. Once these causal factors are isolated, researchers and practitioners can begin to develop comprehensive prevention programs which attempt to influence all three types of obesity indicators. Rigorous evaluation studies of these programs will be needed.

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Table 1. Experimental Intent-to-Treat Evaluations of Social Programs that Examined Impacts on One or More Obesity Indicators and Whether They Were Found to Work, Not Proven to Work, or Had Mixed Findings

OUTCOME AREA	NOT PROVEN TO WORK	MIXED FINDINGS	FOUND TO WORK
<p>Nutrition</p>	<ul style="list-style-type: none"> - Nutrition and Physical Activity Self-Assessment for Child Care (NAP- SACC), a provider-based program implemented in child care centers did not have any impacts on children’s nutrition. - Obesity-Focused Active Parenting, an early childhood family-based program implemented in participant homes did not have any impacts on children’s nutrition. - The school-based Western Australian Schools Physical Activity and Nutrition Program (WASPAN) did not impact child fat intake. - A program geared at Reducing Children’s Television Viewing to Prevent Obesity did not impact children’s consumption of foods high in fat. - An Untitled Nutrition Education Behavior Change Strategy program did not impact children’s nutrition intake, attitudes, or knowledge. - School Nutrition Policy Initiative program did not have an impact on children’s consumption of energy, fat, and fruits and vegetables. 	<ul style="list-style-type: none"> - Hip-Hop to Health, Jr., a program promoting healthy eating, physical activity, and weight loss among children aged 3-5, led to lower saturated fat intake at the one-year follow-up, but not immediately after the intervention or at the two-year follow-up. The program did not impact total fat or dietary fiber intake. - Planet Health, an obesity prevention and reduction program for middle school students, impacted fruit and vegetable consumption among females, but not males. - The Family Health Project for Anglo- and Mexican-American families had inconsistent impacts across subgroups and follow-up assessments; however, some evidence suggests that the program led to improved dietary behavior. - Girlfriends for KEEPS, an obesity-prevention program for African American girls aged 8-10, impacted dietary attitudes and intentions, but not actual dietary behaviors. - Obese children whose parents received training on child management skills as part of the Behavioral Weight Loss Program for Children and their Parents improved their eating habits; however results did not hold at the one-year follow-up. - Individuals participating in the Dietary Intervention Study in Children (DISC) experienced a significantly greater drop in “bad” cholesterol by the one- and three-year follow-ups than control participants. However there were no significant differences across groups on a number of other nutrition indicators. - Gimme 5: A Fresh Nutrition Concept for 	<ul style="list-style-type: none"> - Gimme 5, a program designed to increase fruit, juice, and vegetable consumption among 4th and 5th graders, was effective. - High 5, a program designed to increase fruit and vegetable consumption among 4th graders, effectively impacted the targeted outcomes. - Heart Smart School Health Promotion, a cardiovascular health and nutrition program for elementary school students, increased “good” cholesterol levels. - Know Your Body, a 5-year program for elementary school students addressing smoking, diet, and stress, impacted saturated fat, crude fiber, and carbohydrate intake. - The Child and Adolescent Trial for Cardiovascular Health (CATCH), a three-year program for 3rd-5th graders, decreased energy intake from fat. - The Problem Solving Program for Childhood Obesity, a nutrition, exercise, and weight loss program, lead to healthier eating habits. - A Behavioural Weight Control Programme for children ages 6-13 and their parents led to significant decreases in caloric intake among the child participants. - An Untitled Lifestyle-Focused Physical Activity Intervention led to significant improvements in insulin and glucose levels relative to control participants. - The Stanford Adolescent Heart Health Program, a 20-session health curriculum for high school students addressing smoking, nutrition, physical activity, and stress, impacted self-reports of choosing healthy snacks. - Children Get a Head Start on the Road to Good Nutrition, a nutrition curriculum for

OUTCOME AREA	NOT PROVEN TO WORK	MIXED FINDINGS	FOUND TO WORK
		<p><u>Students</u>, effectively increased fruit and vegetable consumption in high school students immediately after the intervention, but the effects did not last through the one-year follow-up.</p> <ul style="list-style-type: none"> - The <u>5-a-Day Power Plus Program</u>, a program designed to improve eating habits among 4th and 5th graders, increased fruit and vegetable consumption but had no impacts on fiber or fat intake. - The <u>Bienestar Health Program</u>, a diabetes prevention program for low-income, Mexican-American children, led to higher fiber intake but did not impact saturated fat intake. - Children receiving the <u>Active Programme Promoting Lifestyle in Schools (APPLES)</u> intervention reported higher levels of fruit and vegetable consumption following the intervention. However, study subgroups of overweight and obese children receiving the intervention experienced adverse nutrition effects. - The <u>Physical Activity and Teenage Health (PATH)</u> program for adolescents led to better dietary habits in one evaluation but had no effects on nutrition in another study. - Children involved in an <u>Untitled Fitness and Nutrition Intervention</u> experienced improvements on some indicators of nutrition, but not others. - The <u>American Heart Association Lower and Upper Elementary School Site Program Kits and Physical Activity Intervention</u> caused an increase in nutrition knowledge but had no impact on fat intake. - A <u>School-Based Cardiovascular Exercise and Nutrition Program with Parent Participation</u> increased nutrition knowledge and fruit and vegetable intake but did not impact saturated fat, cholesterol, or grain intake. 	<p>students in Head Start, impacted eating behaviors and attitudes.</p> <ul style="list-style-type: none"> - Children participating in each of two programs entitled <u>Reducing Sedentary Behavior</u> exhibited significant increases in consumption of high energy density food as well as fruits and vegetables. - Modifying the Home Television Watching Environment program reduced energy consumption.

OUTCOME AREA	NOT PROVEN TO WORK	MIXED FINDINGS	FOUND TO WORK
Physical Activity	<ul style="list-style-type: none"> - Planet Health, an obesity prevention and reduction program for middle school students, did not impact physical activity. - Hip-Hop to Health, Jr., a program promoting healthy eating, physical activity, and weight loss among children aged 3-5, did not impact physical activity. - The Problem Solving Program for Childhood Obesity, a nutrition, exercise, and weight loss program, did not impact physical activity. - Action Schools! British Columbia, a school-based program designed to supplement physical education classes, did not impact physical activity. - Nutrition and Physical Activity Self-Assessment for Child Care (NAP SACC), a provider-based program implemented in child care centers did not have any impacts on children’s physical activity levels. - Obesity-Focused Active Parenting, an early childhood family-based program implemented in participant homes did not have any impacts on children’s physical activity. - Overweight children receiving the Active Programme Promoting Lifestyle in Schools (APPLES) intervention reported increased sedentary behaviors after the intervention. 	<ul style="list-style-type: none"> - The Bright Bodies program produced impacts on fasting insulin, insulin resistance, and total cholesterol, but did not produce impacts on HDL or LDL cholesterol levels specifically, or triglycerides or fasting glucose. - Heart Smart School Health Promotion, a cardiovascular health and nutrition program for elementary school students, improved fitness levels for boys, but not for girls. -The Family Health Project for Anglo- and Mexican-American families had inconsistent impacts across subgroups and follow-up assessments; however, some evidence suggests that the program led to improved physical activity. -The “Fit for Life” Boy Scout Badge had some positive impacts on physical activity for scouts who worked on the badge during the spring, but had no positive impact on scouts who worked on the badge during the fall. - Girlfriends for KEEPS, an obesity-prevention program for African American girls aged 8-10, impacted physical activity attitudes, but did not impact actual physical activity. - An Untitled School-Based Physical Activity Intervention, led to an increase in school-related physical activity, but not increases in overall physical activity. - Dance for Health, a school-based physical activity program for African American and Hispanic adolescents, improved heart rate, running times, and attitudes about physical activity in girls, but had no effect on boys. - The school-based Western Australian Schools Physical Activity and Nutrition Program (WASPAN) positively impacted children’s physical fitness capabilities but did not decrease sedentary activities in all demographic subgroups. - A program geared at Reducing Children’s 	<ul style="list-style-type: none"> - The Bienestar Health Program, a diabetes prevention program for low-income, Mexican-American children, led to higher physical fitness scores. - The Child and Adolescent Trial for Cardiovascular Health (CATCH), a three-year program for 3rd-5th graders, increased participation in vigorous activity. - A Behavioural Weight Control Programme for children ages 6-13 and their parents led to increased physical activity in child participants. - Obese children who participated in Family Therapy as a Supplement to Dietary Counseling for Obese Children were more physically fit than control participants at the one-year follow-up. - Lifestyle Education for Activity Program (LEAP), a school-based program for girls, increased participant’s engagement in regular vigorous activity. - An Untitled Lifestyle-Focused Physical Activity Intervention led to significant improvements in cardiovascular fitness relative to control participants. - The Stanford Adolescent Heart Health Program, a 20-session health curriculum for high school students addressing smoking, nutrition, physical activity, and stress, increased exercise and improved heart rates. - Children receiving the Physical Training Program for Obese Children experienced declines in exercise heart rate and increases in physical activity relative to control children. - A School-Based Physical Training Program led to significant improvements in physical fitness.

OUTCOME AREA	NOT PROVEN TO WORK	MIXED FINDINGS	FOUND TO WORK
		<p>Television Viewing to Prevent Obesity led to a reduction in children’s media usage, but did not have positive impacts on physical activity.</p> <ul style="list-style-type: none"> - The American Heart Association Lower and Upper Elementary School Site Program Kits and Physical Activity Intervention led to improvements in exercising heart rate and an increase in exercise knowledge, but had no impacts on self-reported physical activity. - The Physical Activity and Teenage Health (PATH) program for adolescents led to improvements in cardiovascular fitness but did not impact physical activity. - A School-Based Cardiovascular Exercise and Nutrition Program with Parent Participation increased children’s fitness knowledge but did not impact cardiovascular fitness. - School Nutrition Policy Initiative program reduced physical inactivity and TV viewing, but did not increase physical activity. - Modifying the Home Television Watching Environment program reduced screen time but did not increase physical activity. 	<ul style="list-style-type: none"> - Children involved in an Untitled Fitness and Nutrition Intervention experienced improvements measures of physical fitness. - A School-Based Exercise Education Program improved aerobic fitness. - Children participating in each of two programs entitled Reducing Sedentary Behavior exhibited significant increases in physical activity and decreases in sedentary behaviors. - The Project SPARK (Sports, Play, and Active Recreation for Kids) resulted in increased physical activity among elementary school children.
Weight Loss	<ul style="list-style-type: none"> - The Bienestar Health Program, a diabetes prevention program for low-income, Mexican-American children did not impact body fat. - The Family Health Project for Anglo- and Mexican-American families did not impact BMI. - The “Fit for Life” Boy Scout Badge did not impact BMI. - Girlfriends for KEEPS, an obesity-prevention program for African American girls aged 8-10, did not impact BMI. - Lifestyle Education for Activity Program (LEAP), a school-based program for girls, did not impact weight loss. - An assessment of the Dietary Intervention 	<ul style="list-style-type: none"> - Planet Health, an obesity prevention and reduction program for middle school students, decreased obesity rates among females, but not males. - The Problem Solving Program for Childhood Obesity, a nutrition, exercise, and weight loss program, lead to temporary weight loss and lowered BMI in one evaluation, but lead to an increase in BMI in another evaluation. - Children in a Diet and Exercise Program for Families experienced a reduction in percentage overweight at the six-month follow-up; however no further reductions occurred by the one-year follow-up. - Children involved in a Parental Training 	<ul style="list-style-type: none"> - Hip-Hop to Health, Jr., a program promoting healthy eating, physical activity, and weight loss among children aged 3-5, resulted in significantly smaller increases in BMI at one- and two-year follow-ups. - SHAPEDOWN, a program providing individualized treatment for obese adolescents, led to significant improvements on relative weight, weight-related behavior, and weight management knowledge. - A Behavioural Weight Control Programme for children ages 6-13 and their parents, led to significant reductions in children’s weight. - Obese children whose parents received training on child management skills as part of the Behavioral Weight Loss Program for

OUTCOME AREA	NOT PROVEN TO WORK	MIXED FINDINGS	FOUND TO WORK
	<p>Study in Children (DISC) did not reveal any significant differences across study groups on weight or BMI.</p> <ul style="list-style-type: none"> - Obesity-Focused Active Parenting, an early childhood family-based program implemented in participant homes did not have any impacts on children’s weight. - Following the conclusion of the Active Programme Promoting Lifestyle in Schools (APPLES) evaluation, there were no differences in BMI between intervention and control group children. - The Superkids/Superfit program did not impact BMI or skinfold thickness. - A School-Based Cardiovascular Exercise and Nutrition Program with Parent Participation did not impact weight or skinfold thickness. - The Project SPARK (Sports, Play, and Active Recreation for Kids) did not lead to reduced BMI or skinfold thickness among elementary school children. 	<p>and Contingency Contracting for Overweight Children program lost significantly more weight than children in the control group; however, no control group comparisons could be made at long-term follow-up assessments.</p> <ul style="list-style-type: none"> - Obese children who participated in Family Therapy as a Supplement to Dietary Counseling for Obese Children were more successful at reducing BMI and skinfold thickness; however the results for BMI did not hold at the one-year follow-up assessment. - Dance for Health, a school-based physical activity program for African American and Hispanic adolescents, improved BMI in girls, but had no effect on boys. - The school-based Western Australian Schools Physical Activity and Nutrition Program (WASPAN) positively impacted skinfold thickness immediately after the intervention, but the effects faded for most subgroups by the long-term follow-up. Additionally, the program did not impact BMI. - The Physical Activity and Teenage Health (PATH) program for adolescents decreased body fat percentage in one evaluation but not in another. Additionally, the program did not impact BMI. - Children experiencing specific components of an Untitled Fitness and Nutrition Intervention experienced improvements on specific indicators of weight loss and body composition and not on others. - A School-Based Exercise Education Program decreased skinfold thickness but had no impact on BMI. - The American Heart Association Lower and Upper Elementary School Site Program Kits and Physical Activity Intervention caused a decrease in skinfold 	<p>Children and their Parents were more successful at losing weight.</p> <ul style="list-style-type: none"> -A study of Varying Maternal Involvement in a Weight Loss Program (mother-child separately group) found that obese adolescents whose parents received instruction separately from them lost more weight than did adolescents whose parents received instruction with them or did not receive instruction. - Children receiving the Family-Based Behavior Modification Program to Target Obesity with a parent/child focus experienced decreases from baseline weight in long-term follow-ups. - An Untitled Lifestyle-Focused Physical Activity Intervention led to significant decreases in body fat relative to control participants. - Children receiving the Physical Training Program for Obese Children experienced significant decreases in body fat relative to children in the no-treatment control group. - A program geared at Reducing Children’s Television Viewing to Prevent Obesity caused reductions in a series of body composition indicators. - The Bright Bodies program produced impacts on weight, body fat, and BMI.

OUTCOME AREA	NOT PROVEN TO WORK	MIXED FINDINGS	FOUND TO WORK
		<p>thickness but had no impact on BMI.</p> <ul style="list-style-type: none"> - Children participating in each of two programs entitled Reducing Sedentary Behavior exhibited significant decreases in percent overweight. However, only children who substituted active behaviors for sedentary behaviors experienced a decrease in BMI. - School Nutrition Policy Initiative program reduced the incidence and prevalence of overweight but did not reduce the incidence and prevalence of obesity, and did not reduce the remission of overweight or obesity. - Modifying the Home Television Watching Environment program reduced BMI at the six- and 12-month follow-up, but not for the 24-month follow-up; there were impacts on BMI for children of a lower SES but not for children of a higher SES. 	

ENDNOTES

¹ U.S. Department of Health and Human Services. (2001). *The Surgeon General's call to action to prevent and decrease overweight and obesity*. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Office of the Surgeon General.

² Federal Interagency Forum on Child and Family Statistics. (2009). *America's Children: Key National Indicators of Well Being, 2009*. Washington, DC: Federal Interagency Forum on Child and Family Statistics.

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⁶ <http://www.childtrends.org/links>

⁷ Programs found to work have positive significant impacts on a particular outcome. If multiple measures are used to assess a particular outcome, the estimated impacts on all of these measures must indicate statistically significant improvements.

⁸ Successful programs include the following: [Reducing Sedentary Behavior](#), a [Problem-Solving Program for Childhood Obesity](#), the [Untitled Lifestyle-Focused Physical Activity Intervention](#), and a [Behavioural Weight Control Programme](#).

⁹ Successful programs include the following: [Reducing Sedentary Behavior](#), the [Physical Training Program for Obese Children](#), the [Untitled Lifestyle-Focused Physical Activity Intervention](#), a [Behavioural Weight Control Programme](#), and [Family Therapy as a Supplement to Dietary Counseling for Obese Children](#).

¹⁰ Successful programs include the following: The [Physical Training Program for Obese Children](#), [Hip Hop to Health Jr.](#), a [Behavioural Weight Control Programme](#), the [Behavioral Weight Loss Program for Children and their Parents](#), [SHAPEDOWN](#), [Varying Maternal Involvement in a Weight Loss Program](#), a [Family-Based Behavior Modification Program to Target Obesity](#), and the [Untitled Lifestyle-Focused Physical Activity Intervention](#).

¹¹ Successful programs include the following: [Children Get a Head Start on the Road to Good Nutrition](#), [Gimme 5](#), [High 5](#), [Know Your Body](#), a [School-Based Physical Training Program](#), [SHAPEDOWN](#), [Varying Maternal Involvement in a Weight Loss Program](#), and a [Family-Based Behavior Modification Program to Target Obesity](#).

¹² Successful programs include the following: [Reducing Sedentary Behavior](#), a [Problem-Solving Program for Childhood Obesity](#), and a [Behavioural Weight Control Programme](#).

¹³ Successful programs include the following: [Reducing Sedentary Behavior](#), a [Behavioural Weight Control Programme](#), and [Family Therapy as a Supplement to Dietary Counseling for Obese Children](#).

¹⁴ Successful programs include the following: [Reducing Sedentary Behavior](#), a [School-Based Exercise Education Program](#), an [Untitled Fitness and Nutrition Intervention](#), the [Child and Adolescent Trial for Cardiovascular Health \(CATCH\)](#), a [Behavioural Weight Control Programme](#), [Family Therapy as a Supplement to Dietary Counseling for Obese Children](#), [Lifestyle Education for Activity Program \(LEAP\)](#), the [Untitled Lifestyle-Focused Physical Activity Intervention](#), and the [Stanford Adolescent Heart Health Program](#).

¹⁵ Successful programs include the following: [Project SPARK \(Sports, Play, and Active Recreation for Kids\)](#), an [Untitled Fitness and Nutrition Intervention](#), a [School-Based Physical Training Program](#), the [Bienestar Health Program](#), the [Child and Adolescent Trial for Cardiovascular Health \(CATCH\)](#), [Family Therapy as a Supplement to Dietary Counseling for Obese Children](#), and [Lifestyle Education for Activity Program \(LEAP\)](#).

¹⁶ Successful programs include the following: [Project SPARK \(Sports, Play, and Active Recreation for Kids\)](#), [Reducing Sedentary Behavior](#), an [Untitled Fitness and Nutrition Intervention](#), a [Behavioural Weight Control Programme](#), [Lifestyle Education for Activity Program \(LEAP\)](#), and the [Stanford Adolescent Heart Health Program](#).

¹⁷ Programs with mixed findings have varied impacts either on particular outcomes or at different times or for varied subgroups. For example, a program resulting in significant improvements in weight loss at post-test but has no impact at one-year follow-up would be rated as having “mixed findings.” A program that works for one subgroup of participants but not for another subgroup on a particular outcome would also receive a “mixed findings” rating.

¹⁸ Successful programs include the following: [Project SPARK \(Sports, Play, and Active Recreation for Kids\)](#), a [School-Based Exercise Education Program](#), an [Untitled Fitness and Nutrition Intervention](#), a [School-Based Physical Training Program](#), the [Physical Training Program for Obese Children](#), the [Child and Adolescent Trial for Cardiovascular Health \(CATCH\)](#), and the [Untitled Lifestyle-Focused Physical Activity Intervention](#).

¹⁹ Programs in this category have non-significant or marginally significant impacts on a particular outcome.

²⁰ Krishnamoorthy, J.S., Hart, C., Jelalian, E. (2006). The Epidemic of Childhood Obesity: Review of Research and Implications for Public Policy. Social Policy Report, XX(II).

²¹ Resnicow, K., & Robinson, T.N. (1997). School-based cardiovascular disease prevention studies: Review and synthesis. *Annals of Epidemiology*, 7, 14-31.

²² Stice, E., Shaw, H., & Marti, N. (2006). A meta-analytic review of obesity prevention programs for children and adolescents: The skinny on interventions that work. *Psychological Bulletin*, 132(5), 667-691.

²³ Ibid.

²⁴ Baranowski, T., Cullen, K., Nicklas, T., Thompson, D., & Baranowski, J. (2002). School-based obesity prevention: A blueprint for taming the epidemic. *American Journal of Health Behavior*, 26, 486-493.

²⁵ Stice, E., Shaw, H., & Marti, N. (2006). A meta-analytic review of obesity prevention programs for children and adolescents: The skinny on interventions that work. *Psychological Bulletin*, 132(5), 667-691.

²⁶ Ibid.