

IMPACT AND EFFECTIVENESS TABLE 32

School & Community Gardens

Effectiveness Tables

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Impact Tables

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EFFECTIVENESS TABLES

Study Description	Measures & Outcomes	Effect Size or % Change	Effectiveness	Maintenance & Representativeness
United States				
<p>Author McAleese, Rankin (2007) Idaho</p> <p>Design Intervention Evaluation Non-randomized trial</p> <p>Duration Low 12 weeks</p>	<p>Measures <i>Access to healthy food options</i> (student participation in school gardening and horticulture program, available produce)</p> <p>Outcome(s) Affected Nutrition (fruit, vegetable, vitamin A, vitamin C and fiber intake assessed with 24 hour food recall)</p>	<p>Net Positive for Nutrition in the Study Population (School and Community Gardens)</p> <p>School and Community Gardens</p> <p><u>NUTRITION:</u> <i>Intervention school 2 (nutrition program and hands-on garden-based activities):</i></p> <ol style="list-style-type: none"> 1. Fruit consumption significantly increased after the intervention by 1.13 servings (p<0.001) and vegetable consumption significantly increased by 1.44 servings (p<0.001) in comparison to pre-intervention behavior. 2. Combined, the number of servings of fruits and vegetables more than doubled from 1.93 to 4.50 servings per day after intervention implementation. 3. The mean vitamin A intake increased significantly by 181.99 µg retinol activity equivalents (RAE) to 612.35 (SD= 359.60) µg RAE per day (p<0.004). The dietary reference intake (DRI) of 600 µg RAE per day for 9 year old to 13 year old children was met. 4. Vitamin C mean consumption also increased significantly by 85.27 mg/day (p=0.016) and exceeded the DRI of 45 mg. 5. The mean fiber intake of students at intervention school 2 significantly increased by 4.24 g to 16.90 (SD=7.40) g/day (p=0.001). <p><i>Intervention school 1 (nutrition program and no garden-based activities)</i></p> <ol style="list-style-type: none"> 6. No significant changes occurred in fruit, vegetable, vitamin A, vitamin C, or fiber intakes of students at the control school or at intervention school 1. 	<p>Somewhat Effective for Nutrition in the Study Population</p> <p>Study design = Intervention evaluation</p> <p>Intervention duration = Low</p> <p>Effect size = Net positive for nutrition in the study population</p>	<p>Maintenance Not Reported</p> <p>Sampling / Representativeness Not Reported</p>
<p>Author Morris, Neustadter (2001) California</p> <p>Design Intervention Evaluation Non-randomized trial</p> <p>Duration Medium 8 months</p>	<p>Measures <i>Access to healthy food options</i> (student participation in school garden cultivation and food preparation activities, available produce)</p> <p>Outcome(s) Affected Willingness to taste vegetables (questionnaire, vegetable tasting)</p>	<p>Not Reported (for desired health outcomes)</p> <p>Net Positive for Willingness to Taste Vegetables</p> <p>School and Community Gardens</p> <p><u>WILLINGNESS TO TASTE VEGETABLES:</u></p> <ol style="list-style-type: none"> 1. At the time of the post-questionnaire, the students in the intervention group were more willing to taste vegetables than students in the control group (F=11.012, p<0.005; intervention group mean: pretest= 4.07, SE=0.31, post-test= 4.83, SE=0.23; control group mean: pretest= 3.90, SE=0.30, post-test= 3.90, SE=0.29). 	<p>More Evidence Needed</p> <p>Study design = Intervention evaluation</p> <p>Intervention duration = Medium</p> <p>Effect size = Not reported for desired health outcome</p>	<p>Maintenance Not Reported</p> <p>Sampling / Representativeness Not Reported</p>
<p>Author Koch, Waliczek (2006) Texas</p> <p>Design Intervention Evaluation Time series study</p> <p>Duration Low <6 months</p>	<p>Measures <i>Access to healthy food options</i> (student participation in educational gardening and food consumption activities, access to healthy snacks)</p> <p>Outcome(s) Affected Nutrition (interview)</p>	<p>Net Positive for Nutrition in the Study Population (School and Community Gardens)</p> <p>School and Community Gardens</p> <p><u>NUTRITION:</u></p> <ol style="list-style-type: none"> 1. After participating in the nutrition program, students reported eating a healthy snack more often when compared to the number of youth who reported eating a healthy snack prior to starting the program (baseline mean 0.16, SD=0.37; follow-up mean 0.50, SD=0.50; t= -3.644; p=0.001). 	<p>Somewhat Effective for Nutrition in the Study Population</p> <p>Study design = Intervention evaluation</p> <p>Intervention duration = Low</p> <p>Effect size= Net positive for nutrition in the study population</p>	<p>Maintenance Not Reported</p> <p>Sampling / Representativeness Not Reported</p>

Study Description	Measures & Outcomes	Effect Size or % Change	Effectiveness	Maintenance & Representativeness
<p>Author Heim, Stang (2009)</p> <p>Location not reported</p> <p>Design Intervention Evaluation</p> <p>Before and after study</p> <p>Duration Low 12 weeks</p>	<p>Measures <i>Access to healthy food options</i> (student participation in garden development, food harvest, and food preparation in an afterschool camp setting, and access to fresh produce)</p> <p>Outcome(s) Affected Nutrition (survey)</p>	<p>Net Positive for Nutrition in the Study Population (School and Community Gardens)</p> <p>School and Community Gardens</p> <p><u>NUTRITION:</u></p> <ol style="list-style-type: none"> At follow-up, children reported a significant increase in the number of vegetables ever eaten (from 7.80±2.24 to 9.17±2.09; p<0.001) and fruits ever eaten (from 4.72±0.61 to 4.86±0.41; p=0.0187). The amount of cucumbers (from 77.6% to 92.6%), spinach (from 58.5% to 74.5%), sugar snap peas (from 62.0% to 77.2%), radishes (from 48.4% to 67.7%), peppers (from 70.7% to 81.5%), zucchini (from 48.4% to 67.7%), beets (from 45.2% to 79.6%), and cantaloupe (from 90.4% to 96.8%) increased from baseline to follow-up, p<0.05 for all. 	<p>Somewhat Effective for Nutrition in the Study Population</p> <p>Study design = Intervention evaluation</p> <p>Intervention duration = Low</p> <p>Effect size = Net positive for nutrition in the study population</p>	<p>Maintenance Not Reported</p> <p>Sampling / Representativeness Not Reported</p>
<p>Author Lautenschlager, Smith (2007)</p> <p>Minnesota</p> <p>Design Intervention Evaluation</p> <p>Before and after study</p> <p>Duration Low 10 weeks</p>	<p>Measures <i>Access to healthy food options</i> (participation in gardening, nutrition education, and ethnic food preparation activities, access to healthy foods)</p> <p>Outcome(s) Affected Nutrition (24-hour recall survey)</p>	<p>Net Neutral for Nutrition in Lower-income Girls (School and Community Gardens)</p> <p>Net Neutral for Nutrition in Lower-income Boys (School and Community Gardens)</p> <p>School and Community Gardens</p> <p><u>NUTRITION:</u></p> <ol style="list-style-type: none"> For girls that indicated that they intended to eat three servings of vegetables a day on the pre-survey, many did not follow through with this intention (difference between pre-survey intention and post-survey behavior= -0.51, p=0.003). Girls also did not follow through with their pre-survey intentions to eat fast food in the last month (difference between pre-survey intention and post-survey behavior= -0.54, p=0.005) or eat foods like pop, chips, and/or sweets in the last month (difference between pre-survey intention and post-survey behavior= -0.43, p=0.006). There were no significant differences between pre-survey intentions to eat fruit and vegetables daily, fast food, pop, chips and/or sweets in the last month and post-survey behavior among boys. 	<p>Not Effective for Nutrition in Lower-income Girls</p> <p>Not Effective for Nutrition in Lower-income Boys</p> <p>Study design = Intervention evaluation</p> <p>Intervention duration = Low</p> <p>Effect size = Net neutral for nutrition in lower-income boys and girls</p>	<p>Maintenance Not Reported</p> <p>Sampling / Representativeness Not Reported</p>

Study Description	Measures & Outcomes	Effect Size or % Change	Effectiveness	Maintenance & Representativeness
<p>Author Hermann, Parker (2006) Oklahoma</p> <p>Design Intervention Evaluation Before and after study</p> <p>Duration Medium 6-12 months</p>	<p>Measures <i>Access to healthy food and lifestyle options</i> (student participation in garden activities, physical education, and food preparation, access to vegetables)</p> <p>Outcome(s) Affected Nutrition and physical activity (questionnaire - 2 pre/post questions)</p>	<p>Net Positive for Nutrition in Rural Native American Children (School and Community Gardens)</p> <p>School and Community Gardens</p> <p><u>NUTRITION:</u></p> <p>1. There was a significant increase in the proportion of children reporting "I eat vegetables every day" from 21% to 44% ($X^2=6.8, p<0.02$).</p>	<p>Effective for Nutrition in Rural Native American Children</p> <p>Study design = Intervention evaluation</p> <p>Intervention duration = Medium</p> <p>Effect size = Net positive for nutrition in rural Native American children</p>	<p>Maintenance Not Reported</p> <p>Sampling / Representativeness Not Reported</p>
<p>Author Johnson, Smith (2006) Washington</p> <p>Design Intervention Before and after study</p> <p>Duration High >24 months</p>	<p>Measures <i>Access to healthy food and lifestyle options</i> (participation in garden activities, increased access to trail network and promotion of breastfeeding, availability of produce)</p> <p>Outcome(s) Affected Nutrition (survey) and trail use (trail counter)</p>	<p>More Evidence Needed- Data Not Provided (School and Community Gardens)</p> <p>(Assumption: Greater access to community gardens leads to greater access to healthy foods, which leads to greater consumption of healthy foods resulting in lower rates of overweight and obesity.)</p> <p>School and Community Gardens</p> <p><u>NUTRITION:</u></p> <p>1. 29 of 61 gardeners completed surveys. 21 of the 29 gardeners completing surveys reserved gardening plots. More than half of the gardeners reported eating more fruits and vegetables while participating in the garden (no statistics).</p>	<p>More Evidence Needed</p> <p>Study design = Intervention evaluation</p> <p>Intervention duration = High</p> <p>Effect size = More evidence needed</p>	<p>Maintenance Not Reported</p> <p>Sampling / Representativeness Not Reported</p>
International				
<p>Author Somerset, Markwell (2008) Australia</p> <p>Design Intervention Evaluation Before and after study</p> <p>Duration Medium 12 months</p>	<p>Measures <i>Access to healthy food options</i> (student participation in school garden implementation, preparation, cultivation, and harvest, and food preparation, and availability of produce)</p> <p>Outcome(s) Affected Food preferences (questionnaire)</p>	<p>Not Reported (for desired health outcomes)</p> <p>Net Positive for Food Preference in the Study Population (School and Community Gardens)</p> <p>School and Community Gardens</p> <p><u>FOOD PREFERENCES:</u></p> <p>1. More children said they liked to eat vegetables every day in grade 4 (33% to 50%), grade 5 (47% to 65%) and grade 6 (26% to 35%). Grade 7 responses decreased from 23% to 18% in 'yes' responses, but also decreased in 'no' responses from 46% to 35%.</p> <p>2. Grades 5 and 6 scored slightly higher post-intervention for answering affirmatively that they would like to taste fruit and vegetables in class (67% to 76% and 45% to 47%, respectively). Grades 4 and 7 decreased (70% to 59% and 55% to 41%, respectively) post-intervention.</p> <p>(Note: Statistical significance was not assessed.)</p>	<p>More Evidence Needed</p> <p>Study design = Intervention evaluation</p> <p>Intervention duration = Medium</p> <p>Effect size = Not reported for desired health outcomes</p>	<p>Maintenance Not Reported</p> <p>Sampling / Representativeness Not Reported</p>

IMPACT TABLES

Study Description	Population	Reach	Intervention	Impact & Sustainability	Other Results	Related Benefits & Consequences
United States						
<p>Author McAleese, Rankin (2007) Idaho</p>	<p>Participation/Potential Exposure Participation = Not Reported Exposure = Low Target population = adolescents Only 6th graders in the intervention schools received the intervention.</p> <p>High-Risk Population Not Reported (for intervention population) 10-13 year olds Sample populations at each school contained a similar representation of ethnic, cultural, and socioeconomic traits.</p>	<p>Representative Not Reported</p> <p>Potential Population Reach More Evidence Needed Participation = Not reported Exposure = Low Representativeness = Not reported</p> <p>Potential High Risk Population Reach More Evidence Needed High-risk population = Not reported Representativeness = Not reported</p>	<p>Intervention Components Complex Establishment and maintenance of a garden within walking distance from school</p> <p>COMPLEX: 1. Students in intervention schools 1 and 2 participated in a 12- week nutrition program developed by Lineberger and Zajicek in which the curriculum provided lessons and activities combining nutrition and horticulture. 2. Intervention school 2 students participated in garden-based activities (weeding, watering, harvesting, cooking).</p> <p>Feasibility Intervention Feasibility = Low Policy Feasibility = High Intervention activities: Establishment and maintenance of a garden 25 x25 ft, nutrition program, garden-based activities Specialized expertise: Training for the teachers (frequency and duration not reported) Resources needed: Teacher training, nutrition education curriculum (Nutrition in the Garden developed by Lineberger and Zajicek), garden, garden materials and supplies, class cookbook Costs: Not reported</p> <p>Implementation Complexity High Intervention components = Complex Feasibility = High</p>	<p>Population Impact More Evidence Needed Effectiveness = Somewhat effective for nutrition in the study population Potential population reach = More evidence needed Implementation complexity = High</p> <p>High-risk Population Impact More Evidence Needed Effectiveness = Not reported for high-risk populations Potential high-risk population reach = More evidence needed Implementation complexity = High</p> <p>Sustainability Not Reported</p>	<p>Not Reported</p>	<p>Not Reported</p>

Study Description	Population	Reach	Intervention	Impact & Sustainability	Other Results	Related Benefits & Consequences
<p>Author Morris, Neustadter (2001) California</p>	<p>Participation/Potential Exposure Participation = Not Reported Exposure = Low Target population = elementary school-aged children Intervention only conducted among 1st grade students. All first grade students at the intervention school were exposed to the intervention.</p> <p>High-Risk Population Not Reported (for intervention population) 6-7 year olds</p>	<p>Representative Reach Not Reported More Evidence Needed Participation = Not reported Exposure = Low Representativeness = Not reported</p> <p>Potential High Risk Population Reach More Evidence Needed High-risk population = Not reported Representativeness = Not reported</p>	<p>Intervention Components Complex Establishment of a school garden <u>COMPLEX:</u> 1. Education lessons were provided on nutrition-specific topics, such as the food guide pyramid. 2. Students worked with school food-service staff to prepare dishes once the vegetables were harvested, including spinach, carrots, peas and broccoli.</p> <p>Feasibility Intervention Feasibility = High Policy Feasibility = High Intervention activities: Establishment of a school garden, educational lessons, preparation of dishes using vegetables from the garden Specialized expertise: Not reported Resources needed: Teachers and food-service staff, parent and community member volunteers, education curriculum, garden and tools for gardening, kitchen for preparing foods Costs: Not reported</p> <p>Implementation Complexity High Intervention components = Complex Feasibility = Low</p>	<p>Population Impact More Evidence Needed Effectiveness = More evidence needed Potential population reach = More evidence needed Implementation complexity = High</p> <p>High-risk Population Impact More Evidence Needed Effectiveness = Not reported for high-risk populations Potential high-risk population reach = More evidence needed Implementation complexity = High</p> <p>Sustainability Not Applicable Pilot study</p>	<p>Not Reported</p>	<p>1. Students at the intervention school showed a significant improvement in their ability to visually identify the food groups (pretest mean: 1.9, SE=0.2; post-test mean: 2.5, SE=0.2; p<0.02).</p>

Study Description	Population	Reach	Intervention	Impact & Sustainability	Other Results	Related Benefits & Consequences
<p>Author Koch, Waliczek (2006) Texas</p>	<p>Participation/Potential Exposure Participation = Not Reported Exposure = Low All Better Living for Texans (BLT) program children who volunteered were exposed to the intervention.</p> <p>High-Risk Population Not Reported (for intervention population) 7-11 year olds</p>	<p>Representative Reach Not Reported</p> <p>Potential Population Reach More Evidence Needed Participation = Not reported Exposure = Low Representativeness = Not reported</p> <p>Potential High Risk Population Reach More Evidence Needed High-risk population = Not reported Representativeness = Not reported</p>	<p>Intervention Components Complex Use of garden to deliver nutrition education, based on the program "Health and Nutrition from the Garden" (Genzer et al, 2001)</p> <p><u>COMPLEX:</u> 1. The gardening and nutrition program taught six main concepts (thrifty gardens, basic gardening, growing techniques, ABCs of healthy eating, healthy snacks, and food safety), which were demonstrated by various activities (introducing fiber in the diet, budgeting, gardening, plant needs, healthy eating according to the food pyramid, label reading, storage methods).</p> <p>Feasibility Intervention Feasibility = High Policy Feasibility = High Intervention activities: Establishment of a community garden, nutrition education based on "Health and Nutrition from the Garden" Specialized expertise: Training for Better Living for Texans (BLT) agents and volunteers (frequency and duration not reported) Resources needed: Garden and gardening supplies (size of garden and amount of supplies not reported), health and nutrition from the garden education program, BLT agents and volunteers Costs: Not reported</p> <p>Implementation Complexity High Intervention components = Complex Feasibility = High</p>	<p>Population Impact More Evidence Needed Effectiveness = Somewhat effective for nutrition in the study population Potential population reach = More evidence needed Implementation complexity = High</p> <p>High-risk Population Impact More Evidence Needed Effectiveness = Not reported for high-risk populations Potential high-risk population reach = More Evidence Needed Implementation complexity = High</p> <p>Sustainability Not Reported</p>	<p>Not Reported</p>	<p>1. Improvement in children's nutrition knowledge scores at posttest compared to pretest (3.69 point improvement, t [55]= -8.686, p≤0.05). There were no differences between age level, gender, ethnicity or county.</p> <p>2. Fruit and vegetable preference scores of children did not significantly improve during or after participating in the program. However, all of the preference test scores were high, indicating that children had a positive attitude toward fruit and vegetables before, during and after participating in the program.</p>

Study Description	Population	Reach	Intervention	Impact & Sustainability	Other Results	Related Benefits & Consequences
<p>Author Heim, Stang (2009)</p> <p>Location not reported</p>	<p>Participation/Potential Exposure Participation = Not Reported Exposure = Low Target population = school aged children Only children entering 4th to 6th grade enrolled in the summer camp were exposed to the intervention.</p> <p>High-Risk Population Not Reported (for intervention population) 8-11 year olds</p> <p>Participants were equally distributed by sex (51% boys, 49% girls) with a mean age of 9.7 years (range 8 to 11 years). Most children were white (78%), followed by Hispanic (8%), Asian American (6%), mixed/other (5%), and African American (3%).</p>	<p>Representative Not Reported</p> <p>Potential Population Reach More Evidence Needed Participation = Not reported Exposure = Low Representativeness = Not reported</p> <p>Potential High Risk Population Reach More Evidence Needed High-risk population = Not reported Representativeness = Not reported</p>	<p>Intervention Components Complex Development of a YMCA summer camp garden</p> <p>COMPLEX:</p> <ol style="list-style-type: none"> Promotion of fruit and vegetable consumption was done through weekly newsletters, recipes, and take-home activities. Children planted fruits and vegetables removed weeds, and observed/harvested the garden. Children were educated on the origins of food, plant parts and the nutrient needs of humans and plants. Tastings were done of fruits and vegetables from the farmers' market. Healthful snacks were prepared with produce from the garden, including 2 snacks for younger campers to promote peer modeling of fruit and vegetable intake. <p>Feasibility Intervention Feasibility = Low Policy Feasibility = High</p> <p>Intervention activities: Development of a 25 x 25 ft garden, weekly fruit and vegetable promotional activities (newsletters, recipe, take-home activities), children gardening activities, educational curriculum, fruit and vegetable tastings, healthful snacks</p> <p>Specialized expertise: Garden training for all YMCA counselors (frequency and duration not reported)</p> <p>Resources needed: Postage, YMCA counselors, Master Gardener, newsletters, recipes, and take-home activities, soil, seeds, water, tools for garden maintenance, produce for taste testing, cookbooks for children, materials for preparing healthful snacks</p> <p>Costs: Not reported</p> <p>Implementation Complexity High Intervention components = Complex Feasibility = High</p>	<p>Population Impact More Evidence Needed</p> <p>Effectiveness = Somewhat effective for nutrition in the study population</p> <p>Potential population reach = More evidence needed</p> <p>Implementation complexity = High</p> <p>High-risk Population Impact More Evidence Needed</p> <p>Effectiveness = Not reported for high-risk populations</p> <p>Potential high-risk population reach = More evidence needed</p> <p>Implementation complexity = High</p> <p>Sustainability Not Applicable</p> <p>Pilot study</p>	<p>Not Reported</p>	<ol style="list-style-type: none"> Children reported a significant increase in vegetable preferences from baseline to follow-up (from 3.17±0.75 to 3.40±0.71, p<0.001). Fruit preferences were high at baseline and remained unchanged from baseline to follow-up. Nearly all of the children (97.8%) enjoyed taste-testing different fruits and vegetables. Children liked preparing fruit and vegetable snacks (93.4%), working in their garden (95.6%), and learning about fruits and vegetables (91.3%). Reported availability of fruits and vegetables in the home was high at baseline and there were no significant changes at follow-up (from 3.11±0.54 to 3.12±0.57, p=0.721).

Study Description	Population	Reach	Intervention	Impact & Sustainability	Other Results	Related Benefits & Consequences
<p>Author Lautenschlager, Smith (2007) Minnesota</p>	<p>Participation/Potential Exposure Participation = Not Reported Exposure = Low All youth were exposed to the same curricula; however, attendance was voluntary, therefore the amount of program exposure varied between youth.</p> <p>High-Risk Population High Lower-income (targeted sample) (Note: The authors stated they focused on a lower-income population but did not provide any statistics.) 8-15 year olds; 36.3 % African American, 42.4% White, 10.6% Hispanic, 7.6% Hmong, 1.5% American Indian, 1.5% Other (evaluation sample)</p>	<p>Representative Not Reported</p> <p>Potential Population Reach More Evidence Needed Participation = Not reported Exposure = Low Representativeness = Not reported</p> <p>Potential High Risk Population Reach More Evidence Needed High-risk population = High Representativeness = Not reported</p>	<p>Intervention Components Complex Garden-based program at three inner city locations, using hands-on experiences in planting, cultivating, harvesting techniques and the food system during a 10 week session (3 days per week) with the Youth Farm and Market Project (YFMP).</p> <p><u>COMPLEX:</u> 1. Nutrition education included weekly topics (e.g., the food cycle, nutrients), followed by an activity (e.g., role playing) to foster participatory learning. 2. The cooking curriculum emphasized ethnic foods and various kitchen skills.</p> <p>Feasibility Intervention Feasibility = Low Policy Feasibility = High Intervention activities: Development of a community garden, hands-on gardening activities, nutrition education, cooking curriculum Specialized expertise: Nutrition educator to teach the nutrition education sessions Resources needed: Three gardens, garden tools, gardening supplies, nutrition and cooking curriculum, kitchen, kitchen tools and cooking supplies, and a nutrition educator Costs: Not reported</p> <p>Implementation Complexity High Intervention components = Complex Feasibility = High</p>	<p>Population Impact More Evidence Needed Effectiveness = Not reported Potential population reach = More evidence needed Implementation complexity = High</p> <p>High-risk Population Impact More Evidence Needed Effectiveness = Not effective for nutrition in lower-income boys or girls Potential high-risk population reach = More evidence needed Implementation complexity = High</p> <p>Sustainability Not Reported</p>	<p>Not Reported</p>	<p>Not Reported</p>

Study Description	Population	Reach	Intervention	Impact & Sustainability	Other Results	Related Benefits & Consequences
<p>Author Hermann, Parker (2006) Oklahoma</p>	<p>Participation/Potential Exposure Participation = Not Reported Exposure = High All kindergarten through 8th grade children participating in the after-school program were exposed to the intervention.</p> <p>High-Risk Population High Rural, 5-13 year olds 72% Native American, 25% White non-Hispanic and 3% Hispanic (school demographics)</p>	<p>Representative Not Reported</p> <p>Potential Population Reach More Evidence Needed Participation = Not reported Exposure = High Representativeness = Not reported</p> <p>Potential High Risk Population Reach More Evidence Needed High-risk population = High Representativeness = Not reported</p>	<p>Intervention Components Complex Establishment of a garden in an after-school program</p> <p>COMPLEX: 1. A variety of after school curricula were used for nutrition education sessions, including Junior Master Gardeners, Agriculture in the Classroom, and United States Department of Agriculture Team Nutrition. 2. Gardening activities included: planting, watering, weeding, fertilizing, mulching and harvesting. Produce grown included corn, beans, squash, onions, peppers, tomatoes, carrots, okra, zucchini, cucumbers, lettuce and spinach. 3. Children participated in food preparation activities emphasizing garden produce. 4. Physical activity education was provided to the children.</p> <p>Feasibility Intervention Feasibility = Low Policy Feasibility = High</p> <p>Intervention activities: Establishment of a garden, physical activity education, nutrition education, gardening activities, food preparation activities</p> <p>Specialized expertise: Oklahoma Cooperative Extension Service (OCES) project coordinator</p> <p>Resources needed: Educational materials (Junior Master Gardeners, Agriculture in the Classroom and United States Department of Agriculture Team Nutrition), OCES project coordinator, school garden, gardening materials and supplies, parents and other volunteers to help with gardening activities, and food preparation space and utensils</p> <p>Costs: Not reported</p> <p>Implementation Complexity High Intervention components = Multi-component Feasibility = High</p>	<p>Population Impact More Evidence Needed</p> <p>Effectiveness = Not reported Potential population reach = More evidence needed Implementation complexity = High</p> <p>High-risk Population Impact More Evidence Needed</p> <p>Effectiveness = Effective for nutrition and physical activity in rural Native American children Potential high-risk population reach = More evidence needed Implementation complexity = High</p> <p>Sustainability Not Reported</p>	<p>Not Reported</p>	<p>INTENTION: 1. There was a significant increase in the proportion of children reporting "I am physically active every day" from 51% to 79% ($\chi^2= 4.8, p<0.05$).</p>

Study Description	Population	Reach	Intervention	Impact & Sustainability	Other Results	Related Benefits & Consequences
<p>Author Johnson, Smith (2006) Washington</p>	<p>Participation/Potential Exposure Participation = Not Reported Exposure = Low Residents living close to the trails and gardens were exposed to the intervention.</p> <p>High-Risk Population Low General Population Moses Lake population (self-identified): 80% White, 26% Hispanic, 2% African American, 1% American Indian or Asian, 3% two or more races In 2003, the unemployment rate was 9.6%. Of the estimated 7000 children enrolled in the school district, 54% of them were enrolled in the free and reduced price lunch program.</p>	<p>Representative Not Reported</p> <p>Potential Population Reach More Evidence Needed Participation = Not reported Exposure = Low Representativeness = Not reported</p> <p>Potential High Risk Population Reach More Evidence Needed High-risk population = Low Representativeness = Not reported</p>	<p>Intervention Components Multi-Component Establishment of community gardens, as a part of the broader Washington State Nutrition and Physical Activity Plan</p> <p><u>MULTI-COMPONENT:</u> 1. Enhanced network of linked walking/biking trails (e.g., improvements in signage, safety features and amenities; improvements in existing trails; donation of land by businesses; modifications in regulations to include trail development as part of construction projects).</p> <p><u>COMPLEX:</u> 1. Master Gardeners provided classes and consultations. 2. Seeds, equipment, and labor were donated from local businesses. 3. Increased breastfeeding among women through promotion, education, training and access to supportive environments for breastfeeding.</p> <p>Feasibility Intervention Feasibility = Low Policy Feasibility = High Intervention activities: Establishment of community gardens, enhancement of walking/biking trails, breastfeeding education, gardening classes and consultations Specialized expertise: Master Gardeners to teach the classes Resources needed: Trail amenities (water facilities, bike racks, benches, restrooms, lighting, and trail maps), breastfeeding coalition activities (web site, training of licensed child care providers, luncheon for human resources staff, breastfeeding equipment, awards for employers, and nursing rooms), community garden resources (gardens, gardeners, volunteers, tool shed, soil, tools, and watering system) Costs: Not reported</p> <p>Implementation Complexity High Intervention components = Multi-component Feasibility = High</p>	<p>Population Impact More Evidence Needed Effectiveness = Not reported Potential population reach = More evidence needed Implementation complexity = High</p> <p>High-risk Population Impact More Evidence Needed Effectiveness = More evidence needed Potential high-risk population reach = More evidence needed Implementation complexity = High</p> <p>Sustainability Yes A local leadership team has sustained the program (leaders from each of the projects, representatives from Moses Lake and the Grant County Public Health District and the Moses Lake Business Bureau). Local government plans and budgets for trails and community gardens have been established. Moses Lake received \$340,000 from an outdoor recreation grant for the Heron trail project. There are now several projects in the design and funding stages that will result in 10 or more miles of new trails and connections between existing trails.</p>	<p>Availability of Parks, Playgrounds, Recreation Centers, and Trails</p> <p><u>TRAIL USE:</u> 1. Mean daily trail use was 182 individuals in 2003 and 191 individuals in 2004, with a mean increase in trail use of 8.7 (SD=6.2) individuals per day. Data for the control community were not available.</p>	<ol style="list-style-type: none"> 17 of the 21 participants who responded to a question about finances stated that they used the garden to stretch their food dollars. The garden built a sense of community and provided access to garden space. Job corps participants advocated for changes at the job corps campus (e.g., serving fresh fruits and vegetables in the dining room; healthy snacks in the vending machines).

Study Description	Population	Reach	Intervention	Impact & Sustainability	Other Results	Related Benefits & Consequences
International						
<p>Author Somerset, Markwell (2008) Australia</p>	<p>Participation/Potential Exposure Participation = Not Reported Exposure = Low Target population = Primary school students The intervention only included children in grades 4-7. All children grades 4 to 7 in the intervention school were exposed to the intervention.</p> <p>High-Risk Population High 8-13 year olds The school was located in a northern Brisbane suburb, designated as a socio-economically disadvantaged area characterized by high unemployment rates and high Indigenous and migrant populations. (Note: The proportion of the population that was lower-income or from racial/ethnic populations was not reported, however the authors stated they were targeting these populations.)</p>	<p>Representative Not Reported</p> <p>Potential Population Reach More Evidence Needed Participation = Not reported Exposure = Low Representativeness = Not reported</p> <p>Potential High Risk Population Reach More Evidence Needed High-risk population = High Representativeness = Not reported</p>	<p>Intervention Components Complex A garden and garden instructor were introduced to a school.</p> <p>COMPLEX: 1. Students were engaged in the following activities related to the school garden: infrastructure (designing, building, making compost); food production (propagating seeds, planting seeds, weeding, watering, mulching, caring for plants, harvesting plants, identifying foods, observing plants grow, counting and graphing growth of plants); food provision, preparation, and consumption (cooking and preparing foods, sharing recipes, eating foods, selling food in tuck shop, catering for special events); communications (writing newspaper articles, conducting tours of garden); learning materials (cooking workshops, drawing maps of garden, holding gardening workshops); and peer/community support (family days at peak harvest times, organizing market days to sell produce, working with adults from the community).</p> <p>Feasibility Intervention Feasibility = Low Policy Feasibility= High Intervention activities: Development of a school garden, infrastructure activities, food production activities, food provision, preparation and consumption activities, communication activities, learning opportunities, peer/community support activities Specialized expertise: Project coordinator and garden instructor with extensive experience in the establishment and maintenance of permaculture gardens Resources needed: Garden instructor, garden and gardening tools, project coordinator Costs: Not reported</p> <p>Implementation Complexity High Intervention components = Complex Feasibility = High</p>	<p>Population Impact More Evidence Needed Effectiveness = Not reported Potential population reach = More evidence needed Implementation complexity = High</p> <p>High-risk Population Impact More Evidence Needed Effectiveness = More evidence needed Potential high-risk population reach = More evidence needed Implementation complexity = High</p> <p>Sustainability Not Reported</p>	Not Reported	<ol style="list-style-type: none"> There were significant improvements following the intervention in recognition of the following vegetables and fruit by children: capsicum, potato, cucumber, aubergine, chili, shallot, garlic, onion, beetroot, radish, courgette, avocado, grape, coconut, star fruit, peach, cherry, mandarin, watermelon, and kiwifruit ($p \leq 0.05$ for all). More children in grade 6 preferred fresh fruit to canned fruit ($p < 0.01$). Following the intervention, students in grades 4 and 6 thought vegetables from the garden tasted better than from the shop ($p < 0.05$), however more 4th grade students reported they hated cooked vegetables ($p < 0.01$). After the intervention more students reported their friends ate lots of vegetables (from 11% to 32% in grade 6; from 19% to 23% in grade 7).