

# IMPACT AND EFFECTIVENESS

## TABLE 35

### **Neighborhood Availability of Food Stores and Restaurants**

Effectiveness Tables

p. 2

Impact Tables

p. 8

# **EFFECTIVENESS TABLES**

Study Description	Measures & Outcomes	Effect Size or % Change	Effectiveness	Maintenance & Representativeness
<b>United States</b>				
<p><b>Author</b> Sturm, Datar (2005); Sturm, Datar (2008)</p> <p><b>Design</b> Association Retrospective cross-sectional study (used data from the Early Childhood Longitudinal Study, Kindergarten Class [ECLS-K] from different time points and compared to food pricing data over five years)</p> <p><b>Duration</b> Not Applicable</p>	<p><b>Measures</b> <i>Access to an affordable and healthy food environment</i> (availability of food outlets, fast-food compared with full-service restaurants, convenience stores, and pricing of healthy food options)</p> <p><b>Outcome(s) Affected</b> Overweight/obesity (BMI) (ECLS data set)</p>	<p><b>No Association for Nutrition in the Study Population (Neighborhood Availability of Food Stores and Restaurants)</b></p> <p><b>Neighborhood Availability of Food Stores and Restaurants</b></p> <p><b>OVERWEIGHT/OBESITY:</b></p> <p>1. No robust effects were found between differential changes in BMI and any of the following: per capita measures of food outlets, relative shares of fast-food restaurants compared with full-service restaurants, or convenience stores compared with grocery stores.</p>	<p><b>No Association for Nutrition in the Study Population</b></p> <p>Study design = Association</p> <p>Intervention duration = High</p> <p>Effect size = No association for nutrition in the study population</p>	<p><b>Maintenance</b> Not Applicable</p> <p><b>Sampling / Representativeness</b> Not Reported</p>

Study Description	Measures & Outcomes	Effect Size or % Change	Effectiveness	Maintenance & Representativeness
<p><b>Author</b> Jago, Baranowski (2007) Texas</p> <p><b>Design</b> Association</p> <p>Cross-sectional study</p> <p><b>Duration</b> Not Applicable</p>	<p><b>Measures</b> <i>Access to a healthy food environment</i> (availability of small food stores and fast food restaurants)</p> <p><b>Outcome(s) Affected</b> Nutrition (Cullen Food Frequency Questionnaire)</p>	<p><b>Positive Association for Nutrition in the Study Population (Neighborhood Availability of Food Stores and Restaurants)</b></p> <p><b>(Assumptions: 1) Greater access to fast food restaurants and convenience stores leads to greater access to unhealthy foods, which leads to increased consumption of unhealthy foods. 2) Greater access to full-service or sit-down restaurants, supermarkets and grocery stores leads to greater access to healthy foods, which leads to increased consumption of healthy foods.)</b></p> <p><b>Neighborhood Availability of Food Stores and Restaurants</b></p> <p><u>NUTRITION:</u></p> <ol style="list-style-type: none"> <li>Distance to the nearest small food store (convenience store and drug store) was positively associated with fruit and juice consumption (<math>\beta=0.001</math>, 95%CI 0.00, 0.00; <math>z=3.07</math>, <math>p=0.002</math>), while distance to nearest fast food restaurant was negatively associated with fruit and juice consumption (<math>\beta=-0.000</math>, 95%CI -0.001, - 0.000; <math>z=-2.76</math>, <math>p=0.006</math>).</li> <li>Both fruit and juice home availability (<math>\beta=0.269</math>, 95% CI 0.18, 0.35; <math>z= 6.37</math>, <math>p&lt;0.001</math>) and fruit and juice preferences (<math>\beta=0.061</math>, 95% CI 0.02, 0.10; <math>z= 2.8</math>, <math>p=0.005</math>) were associated with fruit and juice consumption.</li> <li>The association between distance to the nearest small food store and fruit and juice consumption was attenuated (<math>z=3.07</math>, <math>p=0.002</math> to <math>z=2.63</math>, <math>p=0.008</math>) after preferences were added to the model, suggesting that fruit and juice preferences function as a mediator.</li> <li>Distance to the nearest small food store was positively associated with low-fat vegetable consumption (<math>\beta=0.001</math>, 95%CI 0.00, 0.001), <math>z=2.74</math>, <math>p=0.006</math>). Reduction in the strength of association between distance to the nearest small food store and low fat vegetables consumption before and after the addition of low fat vegetables preferences (<math>z</math> reduced from 2.74, <math>p=0.006</math> to 1.87, <math>p=0.060</math>) suggested a mediation effect.</li> <li>Preferences (<math>\beta= 0.067</math>, 95% CI 0.02, 0.09; <math>z= 3.04</math>, <math>p=0.002</math>) and home availability (<math>\beta= 0.182</math>, 95% CI 0.10, 0.26; <math>z= 4.58</math>, <math>p&lt;0.001</math>) of low-fat vegetables were positively associated with consumption.</li> <li>Distance to the nearest small food store [<math>\beta=0.003</math>, 95%CI (0.00, 0.00), <math>z=3.69</math>, <math>p&lt;0.001</math>], home availability [<math>\beta=0.169</math>, 95%CI (0.08, 0.26), <math>z=3.79</math>, <math>p&lt;0.001</math>], and preferences [<math>\beta=0.174</math>, 95%CI (0.07, 0.27), <math>z=3.31</math>, <math>p=0.001</math>] were associated with consumption of high fat vegetables while distance to the nearest fast food restaurant was negatively associated [<math>\beta=-0.001</math>, 95%CI (-0.00, -0.00), <math>z=-3.21</math>, <math>p=0.001</math>].</li> </ol>	<p><b>Positive Association for Nutrition in the Study Population</b></p> <p>Study design = Association</p> <p>Effect size = Positive association for nutrition in the study population</p>	<p><b>Maintenance</b> Not Applicable</p> <p><b>Sampling / Representativeness</b> Not Reported</p>
<p><b>Author</b> Rundle, Neckerman (2009) New York</p> <p><b>Design</b> Association</p> <p>Cross-sectional study</p> <p><b>Duration</b> Not Applicable</p>	<p><b>Measures</b> <i>Access to healthy food options</i> (neighborhood distribution of supermarkets, fruit and vegetable markets, grocery stores, non-fast food restaurants, fast-food restaurants, convenience stores, pizzerias and bakeries)</p> <p><b>Outcome(s) Affected</b> Overweight/obesity-BMI (height and weight)</p>	<p><b>Positive Association for Overweight/obesity in the Study Population (Neighborhood Availability of Food Stores and Restaurants)</b></p> <p><b>(Assumptions: 1) Greater access to fast food restaurants and convenience stores leads to greater access to unhealthy foods which leads to increased consumption of unhealthy foods resulting in higher body mass index and overweight/obesity. 2) Greater access to full-service or sit-down restaurants, supermarkets and grocery stores leads to greater access to healthy foods which leads to increased consumption of healthy foods resulting in lower body mass index and overweight/obesity.)</b></p> <p><b>Neighborhood Availability of Food Stores and Restaurants</b></p> <p><u>OVERWEIGHT/OBESITY:</u></p> <ol style="list-style-type: none"> <li>The adjusted mean BMI in the 5th quintile (higher density) of healthy food outlets (mean BMI: 27.26) was 0.80 units (95% CI 0.27-1.32, <math>p&lt;0.01</math>) lower than in the 1st quintile of healthy food outlets (mean BMI: 28.06).</li> <li>The prevalence ratio for obesity comparing the 5th quintile of healthy food density with the lowest 2 quintiles combined was 0.87 (95% CI 0.78-0.97). These associations remained after control for 2 neighborhood walkability measures, population density and land use mix. The prevalence ratio for obesity for the 4th versus 1st quartile of population density was 0.84 (95% CI 0.73-0.96) and for land use mix was 0.91 (95% CI 0.86-0.97).</li> <li>Increasing density of BMI-unhealthy and BMI-intermediate food categories was not associated with BMI.</li> </ol> <p>(Note: Food outlets were grouped into 3 categories: 1. BMI-healthy [supermarkets, fruit and vegetable markets], 2. BMI-intermediate [non fast-food restaurants, medium sized grocery stores], and 3. BMI-unhealthy [fast-food, convenience stores, pizzerias, bakeries, candy stores].)</p>	<p><b>Positive Association for Overweight/obesity in the Study Population</b></p> <p>Study design = Association</p> <p>Effect size = Positive association for overweight/obesity in the study population</p>	<p><b>Maintenance</b> Not Applicable</p> <p><b>Sampling / Representativeness</b> High</p> <p>The demographic profile and spatial distribution of the sample are similar to those derived from the 2000 U.S. Census and from the 2002 New York City Community Health Survey</p>

Study Description	Measures & Outcomes	Effect Size or % Change	Effectiveness	Maintenance & Representativeness
<p><b>Author</b> Morland, Wing (2002)</p> <p>North Carolina, Maryland, Minnesota, and Mississippi</p> <p><b>Design</b> Association</p> <p>Cross-sectional study</p> <p><b>Duration</b> Not Applicable</p>	<p><b>Measures</b> <i>Access to healthy nutrition environments</i> (availability of supermarkets and full-service restaurants)</p> <p><b>Outcome(s) Affected</b> Nutrition (Atherosclerosis Risk in Communities Study data)</p>	<p><b>Positive Association for Nutrition in Black Americans (Neighborhood Availability of Food Stores and Restaurants)</b></p> <p><b>No Association for Nutrition in White Americans (Neighborhood Availability of Food Stores and Restaurants)</b></p> <p><b>(Assumptions: 1) Greater access to fast food restaurants and convenience stores leads to greater access to unhealthy foods, which leads to increased consumption of unhealthy foods. 2) Greater access to full-service or sit-down restaurants, supermarkets, and grocery stores leads to greater access to healthy foods, which leads to increased consumption of healthy foods.)</b></p> <p><b>Neighborhood Availability of Food Stores and Restaurants</b></p> <p><u>NUTRITION:</u></p> <ol style="list-style-type: none"> <li>1. Black Americans reported increased intake of fruits and vegetables (F&amp;V) when there was one supermarket in their census tract (adjusted RR =1.30; 95% CI=0.93, 1.81), and a larger increase when there were two or more supermarkets (RR=2.18; 95% CI=1.57, 3.03), corresponding to an average increase of 32% for each additional supermarket (linear RR=1.32; 95% CI=1.08, 1.60). After adjustment for the other types of food stores &amp; food service places, the linear association increased (adjusted RR=1.41; 95% CI=1.13, 1.76). Adding education and income to the model did not change these associations.</li> <li>2. The proportion of individuals meeting dietary recommendations for total fat was higher among Black Americans living in a census tract with at least one supermarket (adjusted RR=1.22; 95% CI=1.03, 1.44).</li> <li>3. The presence of at least one supermarket was also associated with an increase in reported intake of recommended levels of saturated fat for Black Americans (adjusted RR=1.30; CI=1.07, 1.56).</li> <li>4. Compared with Black respondents living in areas without full-service restaurants, those living in neighborhoods with at least one full-service restaurant reported a 26% increase in meeting the recommended diet for saturated fat (adjusted RR=1.21; 95% CI=1.01, 1.46).</li> <li>5. Compared to Black Americans, White American estimates of the association between the local food environment and reported intake of recommended foods and nutrients revealed associations that were weaker and linear associations were not observed.</li> <li>6. There was an 11% increase among Whites in meeting dietary requirements for F&amp;V if at least one supermarket was present (adjusted RR=1.08; 95% CI=0.89, 1.30) and a 10% increase in meeting requirements for saturated fat (adjusted RR=1.09; 95% CI=0.99, 1.20).</li> <li>7. The presence of fast-food restaurants among White Americans was associated with a 12% increase in meeting F&amp;V requirements (adjusted RR=1.12; 95% CI=0.91, 1.37).</li> </ol>	<p><b>Positive Association for Nutrition in Black Americans</b></p> <p><b>No Association for Nutrition in White Americans</b></p> <p>Study design = Association</p> <p>Effect size = Positive association for nutrition in Black Americans and no association for nutrition in White Americans</p>	<p><b>Maintenance</b> Not Applicable</p> <p><b>Sampling / Representativeness</b> Not Reported</p>
<p><b>Author</b> Morland, Evenson (2008)</p> <p>Mississippi, North Carolina</p> <p><b>Design</b> Association</p> <p>Cross-sectional study</p> <p><b>Duration</b> Not Applicable</p>	<p><b>Measures</b> <i>Access to healthy nutrition environments</i> (availability of supermarkets, specialty food stores, convenience stores, fast-food restaurants, and grocery stores)</p> <p><b>Outcome(s) Affected</b> Overweight/obesity (telephone survey)</p>	<p><b>Positive Association for Overweight/obesity in the Study Population (Neighborhood Availability of Food Stores and Restaurants)</b></p> <p><b>(Assumptions: 1) Greater access to fast food restaurants and convenience stores leads to greater access to unhealthy foods which leads to increased consumption of unhealthy foods resulting in higher body mass index and overweight/obesity. 2) Greater access to full-service or sit-down restaurants, supermarkets and grocery stores leads to greater access to healthy foods which leads to increased consumption of healthy foods resulting in lower body mass index and overweight/obesity.)</b></p> <p><b>Neighborhood Availability of Food Stores and Restaurants</b></p> <p><u>OVERWEIGHT/OBESITY:</u></p> <ol style="list-style-type: none"> <li>1. The prevalence of obesity was lowered by 0.78 in areas that had at least one supermarket (adjusted prevalence ratio [PR]=0.78, 95% CI 0.63-0.95).</li> <li>2. Areas with at least one limited service restaurant (adjusted PR=0.73, 95% CI 0.56-0.95) or at least one specialty food store (adjusted PR=0.66, 95% CI 0.51-0.84), were also associated with a lower prevalence of obesity.</li> <li>3. A higher prevalence of obesity was observed in areas with at least one independent owned grocery store (adjusted PR=1.31, 95% CI 1.05-1.62), at least one convenience store with a gas station (adjusted PR=1.19, 95% CI 0.97-1.46) or more than one franchised fast food restaurant (adjusted PR=1.30, 95% CI 1.00-1.69).</li> <li>4. Each mile closer to a supermarket was associated with a 6% higher prevalence of obesity (adjusted PR=1.03, 95% CI 0.91-1.17) and each mile closer to a fast food restaurant was associated with a lower prevalence of obesity (adjusted PR=0.88, 95% CI 0.75-1.02).</li> </ol>	<p><b>Positive Association for Overweight/obesity in the Study Population</b></p> <p>Study design = Association</p> <p>Effect size = Positive association for overweight/obesity in the study population</p>	<p><b>Maintenance</b> Not Applicable</p> <p><b>Sampling / Representativeness</b> Low</p> <p>Study included only 2 geographical areas, and results may not be generalizable to urban or very rural populations</p>

Study Description	Measures & Outcomes	Effect Size or % Change	Effectiveness	Maintenance & Representativeness
<p><b>Author</b> Wang, Cubbin (2007) California</p> <p><b>Design</b> Association Cross-sectional study</p> <p><b>Duration</b> Not Applicable</p>	<p><b>Measures</b> <i>Access to healthy nutrition environments</i> (availability of convenience stores, full-service restaurants, supermarkets, grocery stores and fast-food restaurants)</p> <p><b>Outcome(s) Affected</b> Overweight/obesity (height and weight calculated body mass index [BMI]) and dietary consumption behavior (questionnaire)</p>	<p><b>Positive Association for Overweight/obesity in the Study Population (Neighborhood Availability of Food Stores and Restaurants)</b></p> <p><b>Positive Association for Nutrition in the Study Population (Neighborhood Availability of Food Stores and Restaurants)</b></p> <p><b>(Assumptions: Individuals living in areas with increased development of fast food restaurants, small groceries, and convenient stores will have increased consumption of unhealthy foods and higher rates of overweight and obesity.)</b></p> <p><b>Neighborhood Availability of Food Stores and Restaurants</b></p> <p><u>OVERWEIGHT/OBESITY:</u></p> <p>1. Mean BMI increased by 1.5% in men (p=0.05) and 3.2% in women (p=0.01) from 1981-1990. The % of men and women who were obese increased rapidly, from 14.1% to 17.5% in men (p=0.09) and from 16.3% to 20.9% in women (p=0.03).</p> <p><u>NUTRITION:</u></p> <p>2. There were notable increases among both men and women in the % consuming what are generally considered “healthy” foods. The percentage reporting consumption of poultry/fish, cooked dried beans and reduced-fat milk increased by 12-26% in men and 13-20% in women from 1981-1990.</p> <p>3. There were significant decreases in the % reporting consumption of fried foods (men= 20% decrease, p&lt;0.001; women= 32% decrease, p&lt;0.001) and cured meats (men= 23% decrease, p&lt;0.001; women= 16% decrease, p&lt;0.02).</p> <p>4. The consumption of other less healthy foods increased: sweets by 35% in men (p&lt;0.001) and 15% in women (p=0.04), and TV dinners and other pre-prepared foods by 4-5% among both men (p=0.22) and women (p=0.03).</p> <p><u>ENVIRONMENT CHANGE:</u></p> <p>5. In terms of store density, stores selling sweets (% change= 152.1, p&lt;0.001), pizza stores (% change= 85.2, p&lt;0.001), small grocery stores (% change= 60.3, p&lt;0.001), convenience stores (% change= 17.6, p&lt;0.001) and fast food restaurants (% change= 53.7, p&lt;0.001) showed large increases from 1981 to 1990.</p> <p>(Note: These changes are reflective of the period 1981-1990.)</p>	<p><b>Positive Association for Overweight/obesity in the Study Population</b></p> <p><b>Positive Association for Nutrition in the Study Population</b></p> <p>Study design = Association</p> <p>Effect size = Positive association for overweight/obesity and nutrition in the study population</p>	<p><b>Maintenance</b> Not Applicable</p> <p><b>Sampling / Representativeness</b> Not Reported</p>
<p><b>Author</b> Vernez Moudon, Lee (2007) Washington</p> <p><b>Design</b> Association Cross-sectional</p> <p><b>Duration</b> Not Applicable</p>	<p><b>Measures</b> <i>Access to a healthy nutrition and physical activity environment</i> (availability of grocery stores, markets, and eating/drinking places, land use mix, street connectivity, distance to locations, and residential density)</p> <p><b>Outcome(s) Affected</b> Walking behavior (survey [Behavioral Risk Factor Surveillance System, National Health Interview Survey, International Physical Activity Questionnaire-Long form])</p>	<p><b>Positive Association for Physical Activity in the Study Population (Neighborhood Availability of Food Stores and Restaurants)</b></p> <p><b>(Assumptions: Increased land-use mix (including access to grocery stores, markets, and eating/drinking places), street connectivity, and decreased distance to destinations will increase access to places to be active which will lead to increased physical activity.)</b></p> <p><b>Neighborhood Availability of Food Stores and Restaurants</b></p> <p><u>PHYSICAL ACTIVITY:</u></p> <p>1. Living closer to a grocery store/market (Airline model Odds of walking moderately relative to not walking; OR=0.375, 95%CI= 0.189-0.743, p&lt;0.01) (Airline model Odds of walking sufficiently relative to not walking OR=0.443, 95% CI=0.219-0.896, p&lt;0.05), an eating/drinking place (Airline model Odds of sufficient walking relative to walking moderately OR=0.688, 95%CI=0.493-0.959, p&lt;0.05), and a NC2 ([grocery, restaurant, retail] Network model Odds of walking sufficiently relative to not walking OR=0.640, 95%CI= 0.441-0.928, p&lt;0.05) were correlated with increased walking.</p>	<p><b>Positive Association for Physical Activity in the Study Population</b></p> <p>Study design = Association</p> <p>Effect size = Positive association for physical activity in the study population</p>	<p><b>Maintenance</b> Not Applicable</p> <p><b>Sampling / Representativeness</b> Not Reported</p>

Study Description	Measures & Outcomes	Effect Size or % Change	Effectiveness	Maintenance & Representativeness
<b>International</b>				
<p><b>Author</b> Timperio, Ball (2007) Australia</p> <p><b>Design</b> Association Cross-sectional study</p> <p><b>Duration</b> Not Applicable</p>	<p><b>Measures</b> <i>Access to a healthy nutrition environment</i> (availability of fast-food restaurants, convenient stores, full-service or sit-down restaurants, supermarkets and grocery stores)</p> <p><b>Outcome(s) Affected</b> Nutrition (parent survey)</p>	<p><b>Positive Association for Nutrition in the Study Population (Neighborhood Availability of Food Stores and Restaurants)</b></p> <p><b>(Assumptions: 1) Greater access to fast food restaurants and convenience stores leads to greater access to unhealthy foods, which leads to increased consumption of unhealthy foods. 2) Greater access to full-service or sit-down restaurants, supermarkets and grocery stores leads to greater access to healthy foods, which leads to increased consumption of healthy foods.)</b></p> <p><b>Neighborhood Availability of Food Stores and Restaurants</b></p> <p><u>NUTRITION:</u></p> <ol style="list-style-type: none"> <li>1. Children with at least one fast food outlet within 800 m of home were 38% less likely to consume fruit <math>\geq 2</math> times/day (OR=0.62, 95%CI: 0.40, 0.95; <math>p &lt; 0.05</math>) and those with at least one convenience store within 800 m of home were 25% less likely to consume vegetables <math>\geq 3</math> times/day (OR=0.75, 95%CI: 0.57, 0.99; <math>p &lt; 0.05</math>) than were children who did not have these types of stores close to home.</li> <li>2. Each additional fast food outlet close to home was associated with 18% lower odds of consuming fruit at least 2 times/day (OR=0.82, 95%CI: 0.67, 0.99; <math>p &lt; 0.05</math>).</li> <li>3. Each additional convenience store within 800 m of home was associated with 16% lower odds of consuming fruit at least 2 times/day (OR=0.84, 95%CI: 0.73, 0.98; <math>p &lt; 0.05</math>), and vegetables at least 3 times/day (OR=0.84, 95% CI: 0.74, 0.95; <math>p &lt; 0.01</math>).</li> <li>4. The likelihood of consuming vegetables at least 3 times/day increased as the distance to the closest supermarket and fast food store increased (OR 1.27, 95% CI: 1.07, 1.51; <math>p &lt; 0.001</math> and OR 1.19, 95% CI: 1.06, 1.35; <math>p &lt; 0.001</math>, respectively).</li> <li>5. There were no significant associations with access to green grocers.</li> </ol>	<p><b>Positive Association for Nutrition in the Study Population</b></p> <p>Study design = Association</p> <p>Effect size = Positive association for nutrition in the study population</p>	<p><b>Maintenance</b> Not Applicable</p> <p><b>Sampling / Representativeness</b> Not Reported</p>
<p><b>Author</b> Hume, Salmon (2005) Australia</p> <p><b>Design</b> Association Cross-sectional study</p> <p><b>Duration</b> Not Applicable</p>	<p><b>Measures</b> <i>Access to a healthy nutrition and physical activity environment</i> (availability of food locations, opportunities for physical activity, and diversity of destinations within the neighborhood)</p> <p><b>Outcome(s) Affected</b> Low and moderate intensity physical activity and sedentary behavior (measured with accelerometers)</p>	<p><b>Positive Association for Physical Activity in Study Population (Neighborhood Availability of Food Stores and Restaurants)</b></p> <p><b>(Assumptions: Living in neighborhoods with increased land-use mix, increased access to opportunities for physical activity, and increased street connectivity leads to greater access to places to be active which leads to greater amounts of physical activity.)</b></p> <p><b>Neighborhood Availability of Food Stores and Restaurants</b></p> <p><u>PHYSICAL ACTIVITY:</u></p> <ol style="list-style-type: none"> <li>1. Food locations drawn within the neighborhood showed a significant positive association with moderate intensity activity [F (1, 48) = 4.16, <math>p = 0.05</math>, <math>r^2 = 0.08</math>].</li> <li>2. There were no associations between perceived environmental variables and low or moderate intensity activity among boys.</li> <li>3. Sedentary and vigorous intensity activity was not associated with any environmental variables among girls.</li> </ol> <p>(Note: The perceived environment is a composite of 11 items including, but not limited to opportunities for sedentary behavior, land use mix, access to food in the neighborhood, number of streets in neighborhood, opportunities for physical activity in neighborhood and home, opportunities for socializing in the neighborhood. Access to food in the neighborhood may overlap in designated strategy categories as it relates to both distance and availability.)</p>	<p><b>Positive Association for Physical Activity in Study Population</b></p> <p>Study design = Association</p> <p>Effect size = Positive association for physical activity in the study population</p>	<p><b>Maintenance</b> Not Applicable</p> <p><b>Sampling / Representativeness</b> Not Reported</p>

# **IMPACT TABLES**

Study Description	Population	Reach	Intervention	Impact & Sustainability	Other Results	Related Benefits & Consequences
<b>United States</b>						
<p><b>Author</b> Sturm, Datar (2005); Sturm, Datar (2008) United States</p>	<p><b>Participation/Potential Exposure</b> Not Applicable</p> <p><b>High-Risk Population</b> Not Applicable</p> <p>Only cross-sectional data provided.</p> <p>Children 5-10 years old, 59.3% White, 12.8% African American, 18.4% Hispanic, 5.8% Asian, 3.7% other (evaluation sample)</p>	<p><b>Representative</b> Not Applicable</p> <p><b>Potential Population Reach</b> Not Applicable</p> <p><b>Potential High Risk Population Reach</b> Not Applicable</p>	<p><b>Intervention Components</b> Not Applicable</p> <p>Only cross-sectional data provided.</p> <p>Availability of affordable food in grocery stores, convenience stores, full-service restaurants and fast-food restaurants</p> <p><u>MULTI-COMPONENT:</u> 1. Pricing of fruits, vegetables, and meats</p> <p><b>Feasibility</b> Not Applicable</p> <p><b>Implementation Complexity</b> Not Applicable</p>	<p><b>Population Impact</b> Not Applicable</p> <p><b>High-risk Population Impact</b> Not Applicable</p> <p><b>Sustainability</b> Not Applicable</p>	<p><b>Food Pricing</b> <u>OVERWEIGHT/OBESITY:</u></p> <ol style="list-style-type: none"> <li>Increasing F&amp;V prices by 1 standard deviation would significantly raise BMI by 0.11 BMI units (95% CI: 0.05 - 0.18, p&lt;.001) by 3rd grade. About half of the effect occurred in the first year between kindergarten and 1st grade (0.054 units; 95% CI 0.01 - 0.10, p=.016).</li> <li>Increasing meat prices would lower BMI over 3 years, but this was not statistically significant (-0.025 units, p=0.414).</li> <li>At the lower end of the price distribution, children living in a city with low F&amp;V prices would gain 0.28 BMI units less than the average, while at the upper end of the price distribution, children living in a city with high prices would gain 0.21 units more than the average (the average is already 0.55 units higher than should have been according to growth charts).</li> <li>Point estimates suggest that the protective effect (i.e., lower weight gain) of lower vegetable and fruit prices is 1.5 times larger for children in poverty than for other children (not statistically significant, given sample size).</li> </ol> <p><i>5 year update:</i> Increasing F&amp;V prices by 1 standard deviation would significantly raise BMI by 0.20 BMI units by 5th grade (up from 0.11 BMI units by 3rd grade) (p&lt;0.001).</p>	<p>Not Reported</p>

Study Description	Population	Reach	Intervention	Impact & Sustainability	Other Results	Related Benefits & Consequences
<p><b>Author</b> Jago, Baranowski (2007) Texas</p>	<p><b>Participation/Potential Exposure</b> Not Applicable</p> <p><b>High-Risk Population</b> Not Applicable</p> <p>Only cross-sectional data provided.</p> <p>Male, 10-14 year olds, 70.2% Euro-American; 29.8% Other racial/ethnic populations</p>	<p><b>Representative</b> Not Applicable</p> <p><b>Potential Population Reach</b> Not Applicable</p> <p><b>Potential High Risk Population Reach</b> Not Applicable</p>	<p><b>Intervention Components</b> Not Applicable</p> <p>Only cross-sectional data provided.</p> <p>Neighborhood access to food stores and fast-food restaurants</p> <p><u>COMPLEX:</u></p> <p>1. Fruit and vegetable home availability 2. Food preferences</p> <p><b>Feasibility</b> Not Applicable</p> <p><b>Implementation Complexity</b> Not Applicable</p>	<p><b>Population Impact</b> Not Applicable</p> <p><b>High-risk Population Impact</b> Not Applicable</p> <p><b>Sustainability</b> Not Applicable</p>	<p>Not Reported</p>	<ol style="list-style-type: none"> <li>1. The association between distance to the nearest small food store and fruit and juice consumption was attenuated (<math>z=3.07</math>, <math>p=0.002</math> to <math>2.63</math>, <math>p=0.008</math>) after preferences were added to the model, suggesting that fruit and juice preferences function as a mediator.</li> <li>2. Distance to the nearest small food store was positively associated with low-fat vegetable consumption (Beta=0.001, 95%CI 0.00, 0.001), <math>z=2.74</math>, <math>p=0.006</math>). Reduction in the strength of association between distance to the nearest small food store and low fat vegetables consumption before and after the addition of low fat vegetables preferences (<math>z</math> reduced from <math>2.74</math>, <math>p=0.006</math> to <math>1.87</math>, <math>p=0.060</math>) suggested a mediation effect.</li> <li>3. Preferences (Beta= 0.067, 95% CI 0.02, 0.09; <math>z= 3.04</math>, <math>p=0.002</math>) and home availability (Beta= 0.182, 95% CI 0.10, 0.26; <math>z= 4.58</math>, <math>p&lt;0.001</math>) of low-fat vegetables were positively associated with consumption.</li> </ol>

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<p><b>Author</b> Rundle, Neckerman (2009) New York</p>	<p><b>Participation/Potential Exposure</b> Not Applicable</p> <p><b>High-Risk Population</b> Not Applicable</p> <p>Only cross-sectional data provided.</p>	<p><b>Representative</b> Not Applicable</p> <p><b>Potential Population Reach</b> Not Applicable</p> <p><b>Potential High Risk Population Reach</b> Not Applicable</p>	<p><b>Intervention Components</b> Not Applicable</p> <p>Only cross-sectional data provided.</p> <p>Neighborhood availability of food outlets</p> <p><b>Feasibility</b> Not Applicable</p> <p><b>Implementation Complexity</b> Not Applicable</p>	<p><b>Population Impact</b> Not Applicable</p> <p><b>High-risk Population Impact</b> Not Applicable</p> <p><b>Sustainability</b> Not Applicable</p>	<p>Not Reported</p>	<p>1. 99% of subjects lived within a half-mile of at least one BMI-unhealthy food outlet, while only 82% lived within a half-mile of a BMI-healthy food outlet.</p> <p>2. Outlet density was highest in high-walkable areas of the city and affluent and predominantly white neighborhoods, and lowest in low-walkable and poor and predominantly black or Latino neighborhoods.</p>
<p><b>Author</b> Morland, Wing (2002) North Carolina, Maryland, Minnesota, and Mississippi</p>	<p><b>Participation/Potential Exposure</b> Not Applicable</p> <p><b>High-Risk Population</b> Not Applicable</p> <p>Only cross-sectional data provided.</p> <p>Adults, 22.5% Black Americans, 77.5% White Americans (evaluation sample)</p>	<p><b>Representative</b> Not Applicable</p> <p><b>Potential Population Reach</b> Not Applicable</p> <p><b>Potential High Risk Population Reach</b> Not Applicable</p>	<p><b>Intervention Components</b> Not Applicable</p> <p>Only cross-sectional data provided.</p> <p>Availability of food stores and food service outlets</p> <p><b>Feasibility</b> Not Applicable</p> <p><b>Implementation Complexity</b> Not Applicable</p>	<p><b>Population Impact</b> Not Applicable</p> <p><b>High-risk Population Impact</b> Not Applicable</p> <p><b>Sustainability</b> Not Applicable</p>	<p>Not Reported</p>	<p>Not Reported</p>
<p><b>Author</b> Morland, Evenson (2008) Mississippi, North Carolina</p>	<p><b>Participation/Potential Exposure</b> Not Applicable</p> <p><b>High-Risk Population</b> Not Applicable</p> <p>Only cross-sectional data provided.</p> <p>Adults, 61.5% White and 38.5% African American, 64.7% women (evaluation sample)</p>	<p><b>Representative</b> Not Applicable</p> <p><b>Potential Population Reach</b> Not Applicable</p> <p><b>Potential High Risk Population Reach</b> Not Applicable</p>	<p><b>Intervention Components</b> Not Applicable</p> <p>Only cross-sectional data provided.</p> <p>Neighborhood availability of food stores</p> <p><b>Feasibility</b> Not Applicable</p> <p><b>Implementation Complexity</b> Not Applicable</p>	<p><b>Population Impact</b> Not Applicable</p> <p><b>High-risk Population Impact</b> Not Applicable</p> <p><b>Sustainability</b> Not Applicable</p>	<p>Not Reported</p>	<p>Not Reported</p>

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<p><b>Author</b> Wang, Cubbin (2007) California</p>	<p><b>Participation/Potential Exposure</b> Not Applicable</p> <p><b>High-Risk Population</b> Not Applicable</p> <p>Only cross-sectional data provided.</p> <p>Adults, 83% non-Hispanic White, 17% racial/ethnic populations, 25.5% lower-income (evaluation sample)</p>	<p><b>Representative</b> Not Applicable</p> <p><b>Potential Population Reach</b> Not Applicable</p> <p><b>Potential High Risk Population Reach</b> Not Applicable</p>	<p><b>Intervention Components</b> Not Applicable</p> <p>Only cross-sectional data provided.</p> <p>Changes in neighborhood food store environment from 1981-1990</p> <p><b>Feasibility</b> Not Applicable</p> <p><b>Implementation Complexity</b> Not Applicable</p>	<p><b>Population Impact</b> Not Applicable</p> <p><b>High-risk Population Impact</b> Not Applicable</p> <p><b>Sustainability</b> Not Applicable</p>	<p>Not Reported</p>	<p>Not Reported</p>

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<p><b>Author</b> Vernez Moudon, Lee (2007) Washington</p>	<p><b>Participation/Potential Exposure</b> Not Applicable</p> <p><b>High-Risk Population</b> Not Applicable</p> <p>Only cross-sectional data provided.</p> <p>Urban and Suburban Adults, General population</p>	<p><b>Representative</b> Not Applicable</p> <p><b>Potential Population Reach</b> Not Applicable</p> <p><b>Potential High Risk Population Reach</b> Not Applicable</p>	<p><b>Intervention Components</b> Not Applicable</p> <p>Only cross-sectional data provided.</p> <p>Access to grocery stores and restaurants</p> <p><b>MULTI-COMPONENT:</b> 1. Complete sidewalks and route directness 2. Land-use mix, density, and distance to commercial facilities</p> <p><b>COMPLEX:</b> 1. Perceptions of social support</p> <p><b>Feasibility</b> Not Applicable</p> <p><b>Implementation Complexity</b> Not Applicable</p>	<p><b>Population Impact</b> Not Applicable</p> <p><b>High-risk Population Impact</b> Not Applicable</p> <p><b>Sustainability</b> Not Applicable</p>	<p><b>Street Design</b> <u>PHYSICAL ACTIVITY:</u> 1. Living in an area with more complete sidewalks along major streets (airline (sufficient relative to walking) OR=1.090, 95%CI=1.008-1.179, p&lt;0.05) was significant in the airline but not in the network models and was positively associated with the likelihood of walking sufficiently (p&lt;0.05). 2. Two route directness (airline/network ratio) variables, showed moderately significant (all p&lt;0.05) associations with walking to the closest grocery store/market (network; walking sufficiently relative to not walking, (OR= 1.025, 95%CI= 1.004-1.047) and to the school (OR= 0.987, 95%CI= 0.974-1.00).</p> <p><b>Community Design</b> <u>PHYSICAL ACTIVITY:</u> 1. Having too many grocery stores near home was negatively associated with walking in one airline model (airline model [walking sufficiently relative to not walking] OR= 0.667, 95%CI= 0.454-0.980, p&lt;0.05). 2. Walking was negatively associated with distance to NC5 (office and mixed-use; airline model, odds of walking sufficiently relative to not walking OR=1.274, 95%CI=1.041-1.559, p&lt;0.05) and distance to (office only network model; odds of walking sufficiently relative to not walking, OR=1.581, 95%CI=1.146-2.180; network model odds of walking sufficiently relative to walking moderately; OR=1.235, 95%CI=1.020-1.495, p&lt;0.05) as well as the size of the closest NC8 (office, airline model, odds of walking sufficiently relative to walking moderately; OR= 0.779, CI= 0.0.655-0.927, p&lt;0.05; odds of walking sufficiently relative to walking moderately, OR=0.801, 95%CI=0.712-0.901, p&lt;0.05) to home. 3. Living closer to a grocery store/market (Airline model Odds of walking moderately relative to not walking; OR=0.375, 95%CI= 0.189-.743, p&lt;0.01) (Airline model Odds of walking sufficiently relative to not walking OR=0.443, 95% CI=0.219-0.896, p&lt;0.05)], an eating/drinking place (Airline model Odds of sufficient walking relative to walking moderately OR=0.688, 95%CI=0.493-0.959, p&lt;0.05), a bank (Network model Odds of walking moderately relative to not walking OR=0.775, 95% CI=0.620-0.968)), and a NC2 ([grocery, restaurant, retail] Network model Odds of walking sufficiently relative to not walking OR=0.640, 95%CI= 0.441-0.928, p&lt;0.05) were correlated with increased walking. 4. The density of the respondent's parcel was also strongly associated with walking sufficiently (airline sufficient not walking, OR=1.959, 95%CI=1.148-3.346) (network sufficient relative to not walking, OR=2.021, 95%CI=1.239-3.294) (network sufficient to moderate, OR=1.457, 95%CI=1.118-1.899) (p&lt;0.01 for all) and significantly correlated with both the network and airline models.</p>	<p>1. Survey variables strongly associated with walking sufficiently to enhance health included household income, not having difficulty walking, using transit, perceiving social support for walking, walking outside of the neighborhood, and having a dog (p&lt;0.01).</p> <p>2. Perceived social support for walking in the neighborhood had the strongest association with increased odds of walking. Odds of walking moderately to not walking, (OR= 1.622, 95%CI=1.216-2.165, p&lt;0.01) and Odds of walking sufficiently relative to not walking, (OR=1.855, 95% CI=1.366-2.520, p&lt;0.01).</p>

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<b>International</b>						
<p><b>Author</b> Timperio, Ball (2007) Australia</p>	<p><b>Participation/Potential Exposure</b> Not Applicable</p> <p><b>High-Risk Population</b> Not Applicable</p> <p>Only cross-sectional data provided.</p> <p>5-12 year olds (evaluation sample)</p>	<p><b>Representative</b> Not Applicable</p> <p><b>Potential Population Reach</b> Not Applicable</p> <p><b>Potential High Risk Population Reach</b> Not Applicable</p>	<p><b>Intervention Components</b> Not Applicable</p> <p>Only cross-sectional data provided.</p> <p>Availability of a variety of types of food outlets near the home</p> <p><b>Feasibility</b> Not Applicable</p> <p><b>Implementation Complexity</b> Not Applicable</p>	<p><b>Population Impact</b> Not Applicable</p> <p><b>High-risk Population Impact</b> Not Applicable</p> <p><b>Sustainability</b> Not Applicable</p>	<p>Not Reported</p>	<p>1. Few children had a greengrocer or fast food outlet close to home and one in four had a supermarket within 800m. Of the 5 types of food stores (greengrocer, supermarket, convenience store, fast food outlet, restaurant/café/takeaway), the closest to home were convenience stores and restaurants, cafés or takeaways and the farthest was a greengrocer.</p> <p>2. More than a quarter (29.8%) did not have any of the five types of food stores within 800m of home.</p>
<p><b>Author</b> Hume, Salmon (2005) Australia</p>	<p><b>Participation/Potential Exposure</b> Not Applicable</p> <p><b>High-Risk Population</b> Not Applicable</p> <p>Only cross-sectional data provided.</p> <p>10.1 ± 0.4 years old (evaluation sample)</p>	<p><b>Representative</b> Not Applicable</p> <p><b>Potential Population Reach</b> Not Applicable</p> <p><b>Potential High Risk Population Reach</b> Not Applicable</p>	<p><b>Intervention Components</b> Not Applicable</p> <p>Only cross-sectional data provided.</p> <p>Access to food stores and restaurants</p> <p><u>MULTI-COMPONENT:</u></p> <ol style="list-style-type: none"> <li>1. Presence of parks and green spaces</li> <li>2. Access to diverse locations in the neighborhood</li> </ol> <p><b>Feasibility</b> Not Applicable</p> <p><b>Implementation Complexity</b> Not Applicable</p>	<p><b>Population Impact</b> Not Applicable</p> <p><b>High-risk Population Impact</b> Not Applicable</p> <p><b>Sustainability</b> Not Applicable</p>	<p><b>Availability of Parks, Playgrounds, Trails, and Recreation Centers</b></p> <p><u>PHYSICAL ACTIVITY:</u></p> <ol style="list-style-type: none"> <li>1. Among girls, physical activity opportunities in the neighborhood were positively associated with low intensity activity [F (1, 51) =5.29, p=0.03, r<sup>2</sup>=0.09].</li> </ol> <p><b>Community Design</b></p> <p><u>PHYSICAL ACTIVITY:</u></p> <ol style="list-style-type: none"> <li>1. Food locations drawn within the neighborhood showed a significant positive association with moderate intensity activity [F (1, 48) =4.16, p=0.05, r<sup>2</sup>=0.08].</li> <li>2. There were no associations between perceived environmental variables and low or moderate intensity activity among boys.</li> <li>3. Sedentary and vigorous intensity activity was not associated with any environmental variables among girls.</li> </ol> <p>(Note: The perceived environment is a composite of 11 items including, but not limited to opportunities for sedentary behavior, land use mix, access to food in the neighborhood, number of streets in neighborhood, opportunities for physical activity in neighborhood and home, opportunities for socializing in the neighborhood. Access to food in the neighborhood may overlap in designated strategy categories as it relates to both distance and availability.)</p>	<p>1. Opportunities for sedentary behaviors drawn at home showed a significant positive association with vigorous activity [F(1, 60) =4.06, p=0.05, r<sup>2</sup>=0.06] and an inverse association with time spent being sedentary [F(1, 60)=3.65, p=0.06, r<sup>2</sup>=0.06].</p>