

**Supplementary Table 9. Local Environmental Change to Improve Diet (Community Settings)**

**Accessibility to Supermarkets, Grocery Stores, and Convenience Stores**

Author, y	Design	Population	Duration	Intervention/Evaluation	Major Findings
Morland et al, 2002 <sup>284</sup>	Observational, cross-sectional	N=2392 black and 8231 white participants, age 49-73 y, in the ARIC cohort	1993-95, 1999	This study evaluated the relation between local food environment and intakes of selected foods and nutrients. The food environment was characterized by the number of supermarkets, grocery stores, full-service restaurants, and fast-food restaurants located in the residence census tract of participants (Maryland, North Carolina, Mississippi, and Minnesota), based on data from local health departments and state departments of agriculture in 1999. Dietary intakes were estimated by a semiquantitative FFQ in 1993-1995. Evaluated dietary metrics included daily consumption of $\geq 2$ servings of fruits, $\geq 3$ servings of vegetables, $\leq 300$ mg of cholesterol, $\leq 30\%$ of calories from total fat, and $\leq 10\%$ of calories from saturated fat.	<ul style="list-style-type: none"> <li>• 31% of white but only 8% of black participants lived in a census tract with 1 or more supermarkets. On average, there were 5 times as many supermarkets in census tracts where whites lived.</li> </ul> <p>After adjustment for income, education, and other types of food stores and places:</p> <ul style="list-style-type: none"> <li>• The presence of a neighborhood supermarket was associated with meeting dietary metrics for fruits and vegetables (RR=1.54; 95% CI, 1.11, 2.12), total fat (RR=1.22; 95% CI, 1.03, 1.44), and saturated fat (RR=1.30; 95% CI, 1.07, 1.56) among blacks and with meeting the dietary metric for total fat (RR=1.09; 95% CI, 1.01, 1.18) among whites.</li> <li>• Among blacks only, each additional supermarket in the census tract was associated with 0.41 higher daily servings of fruits and vegetables (95% CI, 0.13, 0.76).</li> <li>• See the separate section in this Table (below) for findings related to fast-food and full-service restaurants.</li> </ul>
Laraia et al, 2004 <sup>285</sup>	Observational, cross-sectional	N=918 women in the PIN study in North Carolina	1995-1999	This study examined the relation between distance to the closest supermarket or convenience store and diet quality index for pregnancy. Data on food stores were obtained from the USDA 2000 inspection registry and geocoded. Data on dietary intakes (percentage of recommended servings of grains, vegetables, and fruits, percentage of RDA of folate and iron, AI of calcium, percentage of calories from fat, and a meal pattern score) were obtained from a validated FFQ and used to construct a diet quality index.	<p>After adjustment for individual factors (age, race, marital status, income, and education) and distance to other food retail outlets:</p> <ul style="list-style-type: none"> <li>• Women living <math>&gt;6.4</math> km from a supermarket were more likely to fall into the lowest diet quality tertile compared with women living <math>\leq 3.2</math> km from a supermarket (OR=2.16; 95% CI, 1.2, 4.0).</li> <li>• Each 1.6 km closer to the nearest convenience store was associated with better diet, ie, lower probability of being in the lowest diet quality tertile (34% at</li> </ul>

					3.2 km, 38% at 6.4 km, and 42% at 9.6 km).
Rose et al, 2004 <sup>287</sup>	Observational, cross-sectional	N=963, national sample of US participants in the Food Stamp program	1996-1997	This study evaluated the relation between access to food stores and fruit and vegetable consumption. By using self-reported supermarket shopping, travel time, and car ownership, a 3-level supermarket access variable was created, including little access, moderate access, and easy access. Weekly household fruit and vegetable consumption was estimated by 2 at-home interviews.	After adjustment for urbanization, household income and size, race, schooling, single-parent status, and employment status of the respondent: <ul style="list-style-type: none"> <li>Distance to the nearest supermarket was inversely associated with fruit consumption. Those who lived &gt;8 km from the nearest supermarket consumed 62 g less fruit (95% CI, -7, -117), with a nonsignificant trend toward 36 g less vegetables (95% CI, -108, 35) per adult equivalent per day than those living closer to the store.</li> <li>Overall “easy access” to a supermarket was associated with consuming 84 g more fruit (95% CI, 5, 162) and a nonsignificant trend toward 48 g more vegetables (95% CI, -57, 153) per adult equivalent per day, compared with little access.</li> </ul>
Sturm et al, 2005 <sup>173</sup>	Observational, longitudinal	N=6918 participants, age 7 y, in the ECLS-K in 59 metropolitan areas in 37 states	4 y, 1998-2002	This study evaluated the relation between density of grocery stores, convenience stores, fast-food restaurants, and full-service restaurants in a child’s neighborhood (home and school ZIP codes) and changes in BMI. Individual-level data were obtained from the cohort. Data on per capita numbers of grocery stores, convenience stores, full-service restaurants, fast-food restaurants, ratio of grocery stores to convenience stores, and ratio of full-service restaurants to fast-food restaurants in the residence ZIP code were obtained from the US Census Bureau 1999 ZIP Code Business Patterns files.	After adjusting for BMI, birth weight, family income, sex, mother's education, and race/ethnicity: <ul style="list-style-type: none"> <li>BMI change over 3 y was not significantly associated with density of grocery or convenience stores.</li> <li>See the separate section in this Table (below) for findings related to fast-food and full-service restaurants.</li> </ul>
Inagami et al, 2006 <sup>300</sup>	Observational, cross-sectional	N=2144 participants in the Los Angeles Family and Neighborhood Study	2000-2002	This study examined the relation between distance to and characteristics of the grocery store where people shop and BMI. Data on neighborhood and grocery store characteristics, including	After adjustment for age, gender, education, race/ethnicity, employment, marital status, income, and neighborhood socioeconomic characteristics: <ul style="list-style-type: none"> <li>Living <math>\geq 2.82</math> km from a grocery store</li> </ul>

				percentage living below the poverty line, percentage of households headed by a woman, male unemployment rate, and percentage of families receiving public assistance were obtained from the 2000 US Census and used to create a neighborhood disadvantage score. BMI was calculated from self-reported height and weight.	was associated with higher BMI (+0.78, $P<0.05$ ). <ul style="list-style-type: none"> <li>BMI was also higher in individuals who chose to shop in grocery stores in more disadvantaged neighborhoods than in their own residential neighborhood (<math>P&lt;0.01</math>).</li> </ul>
Morland et al, 2006 <sup>290</sup>	Observational, cross-sectional	N=10,763 participants, age 49-73 y, in the ARIC cohort living in 207 areas of Mississippi, North Carolina, Maryland, and Minnesota	1993-95, 1999	This study evaluated the relation between the presence of supermarkets, grocery stores, and convenience stores in an individual's residential census tract and prevalence of obesity and other CVD risk factors. Food store data were obtained from local health departments and state departments of agriculture in 1999. BMI was calculated from weight and height measurements collected in 1993.	After adjustment for age, gender, race/ethnicity, income, education, physical activity, and all types of food stores and places simultaneously: <ul style="list-style-type: none"> <li>The presence of supermarkets was associated with a lower prevalence of overweight (OR=0.94; 95% CI, 0.90, 0.98) and obesity (OR=0.83; 95% CI, 0.75, 0.92).</li> <li>No association was found between the presence of grocery stores and overweight (OR=1.03; 95% CI, 1.00, 1.07) or obesity (OR=1.06; 95% CI, 0.99, 1.16).</li> <li>The presence of convenience stores was associated with a higher prevalence of overweight (OR=1.06; 95% CI, 1.02, 1.10) and obesity (OR=1.16; 95% CI, 1.05, 1.27).</li> <li>No significant associations were found between the presence of supermarkets, grocery stores, or convenience stores and prevalence of diabetes, high cholesterol, or hypertension.</li> </ul>
Jago et al, 2007 <sup>288</sup>	Observational, cross-sectional	N=204 Boy Scouts, age 10-14 y, recruited from 36 troops within the greater Houston, Texas area	2003	This study evaluated the relation between distance to food and restaurant outlets and fruit and vegetable consumption. A buffer with a 1.6-km radius was created around each participant's home, and by using council public health records, distance to the nearest food establishment was calculated. An FFQ was used to assess fruit and vegetable consumption. Vegetables were evaluated in 2 groups,	After adjustment for BMI, age, parental education, and ethnicity: <ul style="list-style-type: none"> <li>No significant associations were seen between distance to supermarkets or warehouse clubs and fruit and vegetable consumption.</li> <li>Living closer to a convenience store was associated with lower consumption of fruit and juice (<math>P=0.002</math>), low-fat vegetables (<math>P=0.006</math>), and high-fat vegetables (<math>P=0.001</math>).</li> </ul>

				including “high-fat” vegetables (potatoes, french fries, coleslaw) and other (“low-fat”) vegetables.	<ul style="list-style-type: none"> <li>• See the separate section in this Table (below) for findings related to fast-food and full-service restaurants.</li> </ul>
Wang et al, 2007 <sup>294</sup>	Observational, multiple cross-sectional	N=5795 participants, age 25-74 y, in the Stanford Heart Disease Prevention Program surveys	1979-1990	This study assessed the relation between various types of food stores and BMI. Data on distance to and density of chain supermarkets, grocery stores, ethnic markets, convenience stores, and fast-food restaurants were obtained from the California State Board of Equalization and telephone business directories for the relevant years. Data on BMI and other individual factors were obtained from 5 cross-sectional surveys conducted between 1979 and 1990.	<p>After adjustment for age, gender, ethnicity, SES, smoking, physical activity, and nutrition knowledge:</p> <ul style="list-style-type: none"> <li>• Among women only, closer proximity to supermarkets and ethnic markets was associated with lower BMI (<math>P&lt;0.05</math> each). No associations were seen in men.</li> <li>• Proximity to grocery stores and convenience stores and density of each of these types of stores were not significantly associated with BMI.</li> <li>• See the separate section in this Table (below) for findings related to fast-food restaurants.</li> </ul>
Lopez, 2007 <sup>291</sup>	Observational, cross-sectional	N=15,358 participants in the Massachusetts BRFSS	1998-2002	This study examined the relation between neighborhood presence of a supermarket and fast-food density and obesity. ZIP code level data were obtained from the 2000 US Census and the 2001 County Business Patterns. BMI was calculated based on self-reported height and weight.	<p>After adjusting for age, sex, race/ethnicity, education, income, smoking status, population density, median income, establishment density, and employment density:</p> <ul style="list-style-type: none"> <li>• The presence of a supermarket was associated with lower risk of obesity (OR=0.89; 95% CI, 0.82, 0.98).</li> <li>• See the separate section in this Table (below) for findings related to fast-food restaurants.</li> </ul>
Powell et al, 2007 <sup>292</sup>	Observational, cross-sectional	N=73,079 8th and 10th grade students in the nationwide US Monitoring and Future study	1997-2003	This study examined the relation between per capita availability of chain supermarkets, nonchain supermarkets, convenience stores, and grocery stores and weight status among children. Individual-level data came from the study, and food store data were obtained from Dun and Bradstreet business lists. BMI was calculated from self-reported weight and height.	<p>After adjusting for age, gender, race/ethnicity, grade, parents’ education, neighborhood designation (rural, urban), student income, weekly hours of work by the student, mother’s employment status (part-time or full-time), presence of restaurants and fast-food restaurants, prices of fast food and fruits and vegetables, and neighborhood per capita income:</p> <ul style="list-style-type: none"> <li>• The density of chain supermarkets per 10,000 capita was inversely associated with BMI (<math>\beta=-0.1093</math>, <math>P&lt;0.01</math>) and overweight (<math>\beta=-0.0059</math>, <math>P&lt;0.05</math>).</li> <li>• Greater density of convenience stores was associated with higher BMI (<math>\beta=0.0295</math>,</li> </ul>

					<p><math>P &lt; 0.05</math>) and overweight (<math>\beta = 0.0015</math>, <math>P &lt; 0.05</math>).</p> <ul style="list-style-type: none"> <li>The association between supermarket availability and weight was larger for black children (<math>\beta = -0.3187</math>, <math>P &lt; 0.01</math>) vs white (<math>\beta = -0.0959</math>, <math>P &lt; 0.01</math>) or Hispanic children (<math>\beta = -0.0898</math>, <math>P &lt; 0.1</math>).</li> <li>No association was found between the availability of nonchain supermarkets and grocery stores and BMI.</li> </ul>
Liu et al, 2007 <sup>293</sup>	Observational, cross-sectional	N=7334 children, age 3-18 y, who visited for child-wellness care in 7 urban primary care clinics in Marion County, Indiana	2000	This study evaluated the relation between proximity of home to a supermarket, grocery store, convenience store, and fast-food restaurant and prevalence of overweight (BMI >95th percentile). Data on food establishments and categorization were obtained from hygiene grading conducted by the Marion County Health Department. Data from the 2000 US Census were used to classify participants' residence as high ( $\geq 695$ persons/km <sup>2</sup> ) or low (<695 persons/km <sup>2</sup> ) population density.	<p>After adjusting for age, race, gender, and median family income of the neighborhood:</p> <ul style="list-style-type: none"> <li>Greater distance to the nearest supermarket was associated with higher-risk overweight only in children living in lower-population density regions (OR: 1.04; <math>P = 0.03</math>).</li> <li>No significant associations were seen between distance to the nearest grocery store or convenience store and prevalence of overweight in either high or low population density neighborhoods.</li> <li>See the separate section in this Table (below) for findings related to fast-food restaurants.</li> </ul>
Moore et al, 2008 <sup>286</sup>	Observational, cross-sectional	N=2384 adults, age 45-84 y, in the MESA cohort	2004	This study assessed the relation between local food environment and diet quality. Food environment was characterized by density of supermarkets within 1.6 km of home, participants' reports of the availability of healthy foods in the neighborhood, and a measure of the availability of healthy foods created by aggregating the perceptions of non-MESA participants living in the participants' neighborhoods. Supermarket data were obtained from InfoUSA (Papillion, Nebraska). An FFQ was used to develop 2 dietary measures, including the AHEI and the empirically derived FPM diet pattern. A healthy diet was defined as scoring in the top quintile of AHEI or the bottom quintile of FPM.	<p>After adjustment for age, sex, race, and per capita income:</p> <ul style="list-style-type: none"> <li>Living in a neighborhood with no supermarkets within 1.6 km of home compared with living in the neighborhood with &gt;2.2 supermarkets near home was associated with a 25% lower probability of having a healthy diet based on AHEI (RR=0.75; 95% CI, 0.59-0.95) and a 46% lower probability of having a healthy diet based on FPM (RR=0.54; 95% CI, 0.42, 0.70).</li> <li>On the basis of participant or informant reports, living in a neighborhood with the lowest availability of healthy food was associated with 22%-35% lower probability of having a healthy diet by either diet pattern (<math>P &lt; 0.05</math>), compared with living in a neighborhood with the</li> </ul>

					highest availability of healthy food.
Wang et al, 2008 <sup>283</sup>	Observational, overall cross-sectional trends	N=5779 participants, age 25-74 y, in the Stanford Heart Disease Prevention Program surveys	1981-1990	This study examined the overall trends in number and density of neighborhood food stores, food consumption behavior, and prevalence of overweight. Individual-level data came from participants in 1 of 4 cross-sectional surveys between 1981 and 1990 in 4 mid-sized cities in California. Food store data came from the California State Board of Equalization and telephone business directories for the same years. Diet was assessed by a limited interviewer-administered 24-h recall. Notably, only overall analyses (the whole region combined), rather than neighborhood-level analyses, were performed.	<ul style="list-style-type: none"> <li>From 1981 to 1990, the total number and density of stores per neighborhood selling sweets, pizza, and fast food each increased (<math>P &lt; 0.05</math> for each).</li> <li>Overall increases in the number and/or density of stores that sold sweets, doughnut shops, small grocery stores, and convenience stores paralleled overall increases in the percentage of participants reporting consumption of sweets and other prepared foods.</li> <li>Overall increases in fast-food restaurants did not correspond with an increase in the overall percentage of participants reporting consumption of fried foods, which showed decreases of 32% for women and 20% for men.</li> <li>The percentage of overweight participants increased 13% in women and 7% in men.</li> </ul>
Murakami et al, 2009 <sup>301</sup>	Observational, cross-sectional	N=990 female students age 18-22 y studying dietetics at 15 institutions in Japan	2006-2007	Neighborhood food-store availability and individual food intake were evaluated in a group of young Japanese women. The number of all food stores serving different types of foods within a 1-km mesh-block of residence was derived from the census of commerce. Dietary intake was estimated using a validated, self-administered diet-history questionnaire.	<p>After adjustment for household SES, geographic variables, and frequency of eating out:</p> <ul style="list-style-type: none"> <li>Neighborhood store availability (density) for confectioneries and bread was positively associated with intake of confectioneries and bread.</li> <li>No significant independent association was seen between neighborhood store availability for the other foods examined, including meat, fish, fruits and vegetables, or rice.</li> </ul>
Rundle et al, 2009 <sup>296</sup>	Observational, cross-sectional	N=13,102 adults living in New York City	2000-2002	Geocoding was used to assess the density of healthy food outlets (supermarkets, fruit and vegetable markets, natural food stores) within 0.8 km of home. BMI was measured.	<p>After adjustment for age, sex, race/ethnicity, education, neighborhood sociodemographic characteristics, and population density:</p> <ul style="list-style-type: none"> <li>Greater density of healthy food outlets was associated with lower BMI.</li> <li>Comparing quintile 5 vs 1 (median density 11 vs 0 stores/km<sup>2</sup>), the adjusted BMI difference was 0.8 kg/m<sup>2</sup> (<math>P = 0.003</math>), the prevalence ratio of overweight was 0.94 (95% CI, 0.88, 1.01), and the prevalence ratio of obesity was 0.87 (0.78, 0.97).</li> </ul>

Jilcott et al, 2011 <sup>297</sup>	Observational, cross-sectional	3106 counties in all 50 states	2007-2009 market/store data, 2006-2008 BRFSS data	The USDA ERS Food Environment Atlas was used to map per capita farmers' markets, grocery stores/supermarkets, and supercenters in each county. County prevalence of adult obesity was also obtained from the Atlas, based on BRFSS. Results were stratified by whether the county was rural (no cities with >50,000 residents) or metropolitan (all others).	After adjustment for county-level race, age, median income, and natural amenities (topography, climate, water access): <ul style="list-style-type: none"> <li>Per capita density of grocery stores/supermarkets was inversely associated with obesity, especially in metro counties in which each 24.3/100,000 greater stores was associated with 0.59% lower obesity (<math>P&lt;0.001</math>).</li> <li>Per capita density of supercenters was inversely associated with obesity: per each 1.7/100,000 greater stores, obesity prevalence was 0.08% lower (<math>P=0.004</math>).</li> <li>When all 3 types of outlets were considered together, densities of grocery stores/supermarkets and supercenters but not farmers' markets, were independently associated with lower obesity.</li> </ul>
Chen et al, 2010 <sup>295</sup>	Simulation study	N=3550 residents in 5 poor neighborhoods of Marion County, Indiana, from the Marion County Health Department Obesity Needs Assessment Survey	2005	This study simulated the effect on BMI of a policy to increase the number of new chain grocery stores in 5 poor neighborhoods. Data on participants' weight, shopping and eating habits, use of trails and recreation areas, and geographic identifiers came from the survey, and data on chain grocers came from the Marion County Health Department's health safety inspection records. The effect on BMI of introducing new chain grocery stores in previously underserved neighborhoods was estimated from a prior non-peer-reviewed analysis by the authors on observed links between grocery stores and BMI.	<ul style="list-style-type: none"> <li>The addition of 5 new grocery stores in this county would favorably affect the BMI of <math>\approx 302</math> residents by changing the number of such stores within 1.6 km of residents' homes.</li> <li>Persons living closest to the new stores would be affected most.</li> <li>Among these 302 affected residents, the simulated increase in access to grocery stores was predicted to decrease BMI by <math>0.43 \text{ kg/m}^2</math> (<math>P&lt;0.05</math>).</li> </ul>
Boone-Heinonen et al, 2011 <sup>289</sup>	Observational, longitudinal	N=5115 young US adults, age 18-30, in the CARDIA cohort	1985-1986 to 2000-2001	This prospective study examined the relation of neighborhood fast-food chain, supermarket, and grocery store density (counts per population) with fast-food intake, diet quality, and fruit and vegetable intake, using linked time-varying GIS within 1, 1-3, 3-5, and 5-8 km of home.	After adjustment for individual sociodemographic factors, neighborhood poverty, and sex: <ul style="list-style-type: none"> <li>Supermarket and grocery store density were generally unrelated to diet quality or fruit and vegetable intake.</li> <li>See the separate section in this Table (below) for findings related to fast-food</li> </ul>

					restaurants.
Leung et al, 2011 <sup>299</sup>	Observational, longitudinal	N=353 girls, age 6-7 y, recruited from a health maintenance organization in Northern California	2005-2008	This prospective study examined the relation of neighborhood food stores with 3-y risk of overweight/obesity and change in BMI. Per capita density of food stores was identified from 2006 data from InfoUSA, a commercial database. Stores were classified according to industry codes into 9 separate categories, including convenience stores, drug stores, fast-food outlets, farmers' markets, full-service restaurants, small grocery stores, specialty stores, specific food store venues, and supermarkets. Neighborhoods were assessed at 0.4- and 1.6-km buffers around homes. BMI was measured.	After adjustment for baseline BMI/weight and family sociodemographics: <ul style="list-style-type: none"> <li>• Among the 9 types of stores evaluated within a 0.4-km buffer, availability of convenience stores was associated with higher risk of overweight/obesity (OR=3.38; 95% CI, 1.07, 10.7) and an increase in BMI z score (<math>\beta</math>=0.13; 95% CI, 0.00, 0.25). No other significant associations were seen.</li> <li>• Among the 9 types of stores evaluated within a 1.6-km buffer, availability of farmers' markets was inversely associated with overweight/obesity (OR=0.22; 95% CI, 0.05, 1.06) but not with change in BMI z score (<math>P</math>&gt;0.10). No other significant relations were seen.</li> </ul>

#### Accessibility to Fast-Food and Full-Service Restaurants

Author, y	Design	Population	Duration	Intervention/Evaluation	Major Findings
Morland et al, 2002 <sup>284</sup>	Observational, cross-sectional	N=2392 black and 8231 white participants, age 49-73 y, in the ARIC cohort	1993-1995, 1999	This study evaluated the relation between local food environment and intakes of selected foods and nutrients. Food environment was characterized by the number of supermarkets, grocery stores, full-service restaurants, and fast-food restaurants located in the residence census tract of participants (Maryland, North Carolina, Mississippi, and Minnesota), based on data from local health departments and state departments of agriculture in 1999. Dietary intakes were estimated by semiquantitative FFQ in 1993-1995. Evaluated dietary metrics included daily consumption of $\geq 2$ servings of fruits, $\geq 3$ servings of vegetables, $\leq 300$ mg of cholesterol, $\leq 30\%$ energy from total fat, and $\leq 10\%$ energy from saturated fat.	<ul style="list-style-type: none"> <li>• Fast-food restaurants were evenly dispersed across neighborhoods.</li> <li>• No significant associations were seen between the presence of fast-food or full-service restaurants and these dietary metrics in either blacks or whites.</li> <li>• See the separate section in this Table (above) for findings related to supermarkets and grocery stores.</li> </ul>
Burdette et al, 2004 <sup>303</sup>	Observational, cross-sectional	N=7020 low-income preschool children,	2001	This study evaluated the relation between proximity of residence to fast-	<ul style="list-style-type: none"> <li>• The distance (mean<math>\pm</math>SD) to the nearest fast-food restaurant was similar in</li> </ul>



		age 3-6 y, enrolled in the WIC program in Cincinnati, Ohio		food restaurants and prevalence of overweight (BMI $\geq$ 95th percentile). Height and weight were measured at the most recent WIC visit. Fast-food restaurant locations were obtained from US Yellow Page listings. ArcView was used to geocode residence and fast-food restaurants.	overweight (1.12 $\pm$ 0.64 km) vs nonoverweight (1.10 $\pm$ 0.61 km) children ( $P=0.91$ ). <ul style="list-style-type: none"> <li>56.0% of overweight children lived in a neighborhood with a fast-food restaurant, whereas 55.5% of nonoverweight children lived in a neighborhood with a fast-food restaurant (<math>P=0.84</math>).</li> </ul>
Simmons et al, 2005 <sup>304</sup>	Observational, cross-sectional	N=1454 residents of randomly selected households in Australia	2001-2003	This study examined the relation between availability of take-out and fast-food restaurants and obesity. Restaurants were mapped through direct observation and use of the local telephone directory. The per capita density of local take-out and dine-in fast-food restaurants (number per 1000 population) was calculated using the 2001 census population in each town. BMI was calculated from measured height and weight. The food environment was assessed separately for regional centers, large rural towns, and small rural towns.	<ul style="list-style-type: none"> <li>No significant associations were found between the density of take-out and dine-in fast-food restaurants and prevalence of obesity.</li> </ul>
Jeffery et al, 2006 <sup>305</sup>	Observational, cross-sectional	N=1033 Minnesota residents from a random digit-dial telephone survey	Not provided	This study evaluated the relation between living or working near various types of restaurants and BMI. GIS methodology was used to calculate the total number of restaurants and the number of fast-food restaurants within 0.8, 1.6, and 3.2 km of home and work. BMI was determined by self-reported height and weight.	After adjustment for age and education: <ul style="list-style-type: none"> <li>A significant inverse relation was observed between the number of fast-food, non-fast-food, and total restaurants within 3.2 km of work and BMI in men (fast food: <math>\beta\beta=-0.029</math>, <math>P=0.008</math>; non-fast food: <math>\beta\beta=-0.022</math>, <math>P=0.01</math>; total: <math>\beta\beta=-0.005</math>, <math>P=0.01</math>) but not women.</li> <li>No significant relations were seen between the number of restaurants near home and BMI in men or women.</li> </ul>
Jago et al, 2007 <sup>288</sup>	Observational, cross-sectional	N=204 Boy Scouts, age 10-14 y, recruited from 36 troops within the greater Houston, Texas area	2003	This study evaluated the relation between distance to food and restaurant outlets and fruit and vegetable consumption. A buffer with a 1.6-km radius was created around each participant's home, and council public health records were used to calculate distance to the nearest food establishment. An FFQ was used to assess consumption of	After adjustment for BMI, age, parental education, and ethnicity: <ul style="list-style-type: none"> <li>Living closer to a fast-food restaurant was associated with higher consumption of high-fat vegetables (<math>P=0.003</math>) and fruit and juice (<math>P=0.006</math>).</li> <li>No significant associations were seen between distance to cafeterias or full-service restaurants and fruit and vegetable consumption.</li> </ul>

				fruits, juice, and vegetables. Vegetables were evaluated in 2 groups, including “higher-fat” vegetables (potatoes, french fries, and coleslaw) and other (“lower-fat”) vegetables.	<ul style="list-style-type: none"> <li>See the separate section in this Table (above) for findings related to supermarkets and convenience stores.</li> </ul>
Wang et al, 2007 <sup>294</sup>	Observational, multiple cross-sectional	N=5795 participants, age 25-74 y, in the Stanford Heart Disease Prevention Program surveys	1979-1990	This study assessed the relation between various types of food stores and BMI. Data on distance to and density of chain supermarkets, grocery stores, ethnic markets, convenience stores, and fast-food restaurants were obtained from the California State Board of Equalization and telephone business directories for the relevant years. Data on BMI and other individual factors were obtained from 5 cross-sectional surveys conducted between 1979 and 1990.	<p>After adjustment for age, gender, ethnicity, SES, smoking, physical activity, and nutrition knowledge:</p> <ul style="list-style-type: none"> <li>Proximity to and density of fast-food restaurants were not significantly associated with BMI.</li> <li>See the separate section in this Table (above) for findings related to supermarkets, ethnic markets, grocery stores, and convenience stores.</li> </ul>
Lopez, 2007 <sup>291</sup>	Observational, cross-sectional	N=15,358 participants in the Massachusetts BRFSS	1998-2002	This study examined the relation between fast-food density (stores per square kilometer) and presence of a supermarket in the neighborhood and obesity. ZIP code level data were obtained from the 2000 US Census and the 2001 County Business Patterns. BMI was calculated based on self-reported height and weight.	<p>After adjusting for age, sex, race/ethnicity, education, income, smoking status, population density, median income, establishment density, and employment density:</p> <ul style="list-style-type: none"> <li>Fast-food density was not associated with obesity (OR=1.00; 95% CI, 0.92, 1.01).</li> <li>See the separate section in this Table (above) for findings related to supermarkets.</li> </ul>
Liu et al, 2007 <sup>293</sup>	Observational, cross-sectional	N=7334 children, age 3-18 y, visited for child-wellness care in 7 urban primary care clinics in Marion County, Indiana	2000	This study evaluated the relation between proximity of home to a supermarket, grocery store, convenience store, and fast-food restaurant and prevalence of overweight (BMI >95th percentile). Data on food establishments and categorization were obtained from hygiene grading conducted by the Marion County Health Dept. The 2000 US Census data were used to classify participants’ residences as high population density ( $\geq 695$ persons/km <sup>2</sup> ), or low population density (<695 persons/km <sup>2</sup> ).	<p>After adjusting for age, race, gender, and median family income of the neighborhood:</p> <ul style="list-style-type: none"> <li>No significant associations were seen between distance to the nearest fast-food restaurant and prevalence of overweight in either high or low population density neighborhoods.</li> <li>See the separate section in this Table (above) for findings related to supermarkets, grocery stores, and convenience stores.</li> </ul>
Mehta and Chang,	Observational, cross-sectional	N=714,054 US adults in the BRFSS,	2006-2007	This study examined the relation between restaurant environment and	After adjustment for age, age-squared, gender, race/ethnicity, education, smoking status,

2008 <sup>306</sup>		a nationally representative sample of the noninstitutionalized adult population age 18+ y		BMI across counties in the United States. Restaurant environment was measured by per capita fast-food and full-service restaurant density (number per 10,000 individuals) and ratio of fast-food to full-service restaurants. Individual data came from the 2002-2006 BRFSS. Restaurant data came from the 2002 US Economic Census.	household income, and county-level variables (population size, median household income, percentage of adults with a high school diploma): <ul style="list-style-type: none"> <li>• Higher BMI was seen with higher fast-food restaurant density (<math>\beta=0.09</math>; 95% CI, 0.02-0.16; <math>P&lt;0.05</math>) and a higher ratio of fast-food to full-service restaurants (<math>\beta=0.20</math>; 95% CI, 0.12-0.27; <math>P&lt;0.001</math>).</li> <li>• Lower BMI was seen with higher density of total restaurants (<math>\beta=-0.22</math>; 95% CI, -0.30-0.14; <math>P&lt;0.001</math>) and full-service restaurants (<math>\beta=-0.32</math>; 95% CI, -0.40-0.24; <math>P&lt;0.001</math>).</li> <li>• Higher risk of being obese was associated with density of fast-food restaurants (OR=1.05; 95% CI, 1.02-1.08) and a higher ratio of fast-food to full-service restaurants (OR=1.08; 95% CI, 1.05-1.1) were associated with.</li> <li>• Lower risk of being obese was associated with higher density of total restaurants (OR=0.94; 95% CI, 0.91-0.96) and full-service restaurants (OR=0.89; 95% CI, 0.87-0.92).</li> </ul>
Spence et al, 2009 <sup>308</sup>	Observational, cross-sectional	N=2900 participants, age 18+ y, in Edmonton, Canada, in the Population Health Survey	2002	This study examined the relation between relative availability of and distance to different types of neighborhood food retail stores and obesity. Data on food outlets came from the Health Inspection division of Capital Health and the Alberta First Business Directory. An RFEI was calculated based on the ratio of the number of fast-food restaurants plus convenience stores divided by the number of grocery stores. Buffers of 800 m and 1600 m were evaluated around participants' postal codes. BMI was calculated from self-reported height and weight.	After adjustment for age, sex, education, and neighborhood SES index: <ul style="list-style-type: none"> <li>• RFEI within 800 m of home was associated with obesity: residents of areas with the lowest RFEI (&lt;3.0) had a lower prevalence of obesity than residents in areas with the highest RFEI (5.0+) (OR=0.75; 95% CI, 0.59, 0.94).</li> </ul>
Li et al, 2009 <sup>309</sup>	Observational, cross-sectional	N=1221 adults, age 50-75 y, in a regionally	2006-2007	This study examined the relation between fast-food restaurant density and individual-level behaviors and	After adjustment for age, gender, education, household income, employment status, home ownership, alcohol and tobacco use, fruit and

		representative sample of 120 neighborhoods in Portland, Oregon		obesity. BMI, eating-out behavior, eating self-efficacy, fried food consumption, fruit and vegetable intake, physical activity, and sociodemographic characteristics were assessed at in-person interviews. Fast-food restaurant data came from commercial business data at InfoUSA.	vegetable intake, fried food consumption, and neighborhood characteristics (land-use mix, residential density, median household income, percentage of non-Hispanic black residents, percentage of Hispanic residents): <ul style="list-style-type: none"> <li>Residents of high-density fast-food restaurant neighborhoods who also regularly visited fast-food or buffet restaurants (1-2 times per week) were more likely to be obese than those living in low-density fast-food restaurant neighborhoods (OR=1.9; 95% CI, 1.01-3.5, <math>P&lt;0.05</math>).</li> <li>Compared with low-density fast-food restaurant neighborhoods, residents of high-density fast-food restaurant neighborhoods were more likely to report low self-efficacy in eating healthy food (OR=1.21; 95% CI, 1.06, 1.39, <math>P&lt;0.005</math>) and to not meet recommended levels of physical activity (OR=1.79; 95% CI, 1.01, 3.19, <math>P&lt;0.05</math>).</li> </ul>
Currie et al, 2009 <sup>307</sup>	Observational, cross-sectional	3.06 million 9th grade children in California public schools; and pregnant women in Michigan, New Jersey, and Texas	Children Study: 1999 and 2001-2007  Pregnant Woman Study: 1989-2003	This study evaluated the relation between fast-food restaurants and obesity among 9th grade children and pregnant women. Data on children came from the California public schools; data on schools (percentage black, white, Hispanic, and Asian; percentage immigrant; pupil/teacher ratios; fraction eligible for free lunch, etc) came from the National Center for Education Statistics Common Core of Data. Data on census block of the school (median earnings, percentage with a high-school degree, percentage unemployed, percentage urban) came from the 2000 US Census. Data on pregnant women came from Vital Statistics birth data in 3 states, with restaurant data from the NETS Database. Availability of fast-food or other restaurants was assessed within 0.16, 0.4, and 0.8 km of either the school or the mother's residence.	After adjusting for school-level variables, census block variables, and year effects: <ul style="list-style-type: none"> <li>Among 9th grade children, the presence of a fast-food restaurant within 0.16 km of a school was associated with a 5.2% higher risk of obesity.</li> <li>Among pregnant women, the density of fast-food restaurants within a 0.8-km radius of home was associated with a 2.5% higher probability of gaining &gt;20 kg during pregnancy.</li> </ul>

Davis et al, 2009 <sup>312</sup>	Observational, cross-sectional	N=529,367 middle school and high school students in the California Healthy Kids Survey	2002-2005	This study evaluated the relation between proximity of fast-food restaurants to schools and obesity among middle school and high school students in California. Individual-level data came from the survey, school data came from the California Department of Education, and data on fast-food restaurants came from Microsoft Streets and Trips, with restaurant brands classified as “top limited-service restaurants” by Technomic Inc.	<p>After adjustment for student-level characteristics (age, gender, grade, race/ethnicity, physical activity), school-level characteristics (school type, percentage of students eligible for free or reduced-price meals, school enrollment, indicators for school location types), county indicators, and survey wave:</p> <ul style="list-style-type: none"> <li>• Students with a fast-food restaurant within 0.8 km of their school were more likely to be overweight (OR=1.06; 95% CI, 1.02, 1.10, <math>P&lt;0.01</math>) and obese (OR=1.07; 95% CI, 1.02, 1.12, <math>P&lt;0.01</math>).</li> <li>• After further adjustment for the presence of nearby gas stations, motels, and grocery stores, attending a school within 0.8 km of a fast-food restaurant was associated with a 0.13-unit increase in BMI (95% CI, 0.05, 0.20, <math>P&lt;0.01</math>).</li> </ul>
Richardson et al, 2011 <sup>302</sup>	Observational, cross-sectional	N=13,150 young US adults, age 18-28 y, in the nationally representative National Longitudinal Study of Adolescent Health	2001-2002	This study evaluated the relation of neighborhood fast-food availability and frequency of self-reported fast-food consumption.	<p>After adjustment for individual and neighborhood characteristics:</p> <ul style="list-style-type: none"> <li>• No significant association was seen in rural, low-density urban, or high-density urban areas.</li> </ul>
Sturm et al, 2005 <sup>173</sup>	Observational, longitudinal	N=6918 participants, age 7 y, in the ECLS-K in 59 metropolitan areas in 37 states	4 y, 1998-2002	This study evaluated the relation between density of grocery stores, convenience stores, fast-food restaurants, and full-service restaurants in a child’s neighborhood (home and school ZIP codes) and changes in BMI. Individual-level data were obtained from the cohort. Data on per capita numbers of grocery stores, convenience stores, full-service restaurants, fast-food restaurants, ratio of grocery stores to convenience stores, and ratio of full-service restaurants to fast-food restaurants in the residence ZIP code were obtained from the US Census Bureau's 1999 ZIP Code Business Patterns files.	<p>After adjusting for BMI, birth weight, family income, sex, mother's education, and race/ethnicity:</p> <ul style="list-style-type: none"> <li>• The per capita number of fast-food restaurants was associated with a nonsignificant trend toward faster BMI gain (<math>P&lt;0.10</math>).</li> <li>• BMI change over 3 y was not significantly associated with density of full-service restaurants.</li> <li>• See the separate section in this Table (above) for findings related to grocery stores and convenience stores.</li> </ul>

Li et al, 2009 <sup>310</sup>	Observational, longitudinal	N=1145 adults, age 50-75 y, in a regionally representative sample of 120 neighborhoods in Portland, Oregon	2006-2007 to 2007-2008 (1 y)	This prospective study examined the relation of fast-food restaurant density and individual-level behaviors with obesity, including weight and waist circumference. Data on fast-food restaurants came from InfoUSA. Covariates included neighborhood characteristics (residential density, median household income, percentage of non-Hispanic black residents, percentage of Hispanic residents) and individual characteristics (age, gender, education, household income, race/ethnicity, tobacco use, employment status, health status, baseline values of BMI, weight, and waist circumference). Anthropometrics were objectively measured at baseline and follow-up.	After adjustment for neighborhood and individual characteristics: <ul style="list-style-type: none"> <li>Residents of high-density fast-food neighborhoods who made weekly visits to fast-food restaurants experienced more increase in weight (+1.40 kg, <math>P&lt;0.05</math>) and waist circumference (2.06 cm, <math>P&lt;0.05</math>) over time, compared with residents of low-density fast-food neighborhoods or those who did not make weekly visits to fast-food restaurants.</li> </ul>
Boone-Heinonen et al, 2011 <sup>289</sup>	Observational, longitudinal	N=5115 young US adults, age 18-30, in the CARDIA cohort	1985-1986 to 2000-2001	This prospective study examined the relation of neighborhood fast-food chain, supermarket, and grocery store density (counts per population) with fast-food intake, diet quality, and fruit and vegetable intake, using linked time-varying GIS within 1, 1-3, 3-5, and 5-8 km of home.	After adjustment for individual sociodemographic factors, neighborhood poverty, and sex: <ul style="list-style-type: none"> <li>Fast-food store density was associated with fast-food consumption among low-income respondents, especially at 1-3 km among men.</li> <li>See the separate section in this Table (above) for findings related to supermarkets and grocery stores.</li> </ul>
Leung et al, 2011 <sup>299</sup>	Observational, longitudinal	N=353 girls, age 6-7 y, recruited from a health maintenance organization in Northern California	2005-2008	This prospective study examined the relation of neighborhood food stores with 3-y risk of overweight/obesity and change in BMI. Per capita density of food stores was identified from data from 2006 InfoUSA, a commercial database. Stores were classified according to industry codes into 9 separate categories, including convenience stores, drug stores, fast-food outlets, farmers' markets, full-service restaurants, small grocery stores, specialty stores, specific food store venues, and supermarkets. Neighborhoods were assessed at 0.4- and 1.6-km buffers around homes. BMI was measured.	After adjustment for baseline BMI/weight and family sociodemographics: <ul style="list-style-type: none"> <li>Within both a 0.4- and 1.6-km buffer, neither fast-food outlets nor full-service restaurants were associated with 3-y risk of overweight/obesity or change in BMI z score.</li> <li>See the separate sections in this Table for findings related to supermarkets and grocery stores (above) and farmers' markets (below).</li> </ul>

Alter and Eny, 2005 <sup>311</sup>	Observational, cross-sectional	380 geographical regions (Forward Sortation Area) in Ontario, Canada	2001	This study examined the relation between interregional differences in fast-food concentrations and variations in all-cause mortality and acute coronary syndromes. Electronic public access files from 2001 were used to identify 1630 fast-food restaurants from 9 leading fast-food chains in 380 regions throughout Ontario. Per capita density of fast-food restaurants per region was calculated. Regional per capita total mortality and acute coronary syndrome hospitalization rates were obtained using 2001 vital statistics data and hospital discharge data.	After adjustment for age, gender, and SES: <ul style="list-style-type: none"> <li>Total mortality and admission for acute coronary syndromes were higher in regions with greater concentrations of fast-food restaurants. Each additional fast-food restaurant per 100,000 people was associated with 1 additional death per 100,000 (<math>P&lt;0.001</math>).</li> <li>These relationships were similar in both high- and low-income communities.</li> </ul>
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**Accessibility to Farmers' Markets**

Reference	Design	Population	Duration	Intervention/Evaluation	Major Findings
McCormack et al, 2010 <sup>319</sup>	Systematic review of peer-reviewed US studies of farmers' markets or community gardens	12 US studies evaluating farmers' markets and various diet-related outcomes, including fruit and vegetable intake (most studies) or other foods/drinks (1 study). No identified studies evaluated adiposity.	Studies published between January 1980 and January 2009	<ul style="list-style-type: none"> <li>7 studies were on the FMNP for women enrolled in WIC, including 4 cross-sectional observational studies and 3 quasi-experimental studies (pre-/postintervention, nonrandomized, with control group).</li> <li>5 studies were on farmers' market programs for seniors, some funded by the USDA SFMNP, including 3 cross-sectional observational studies and 2 quasi-experimental studies (pre-/postintervention).</li> </ul>	<p>FMNP cross-sectional:</p> <ul style="list-style-type: none"> <li>The National Association of FMNP found that among WIC participants from 30 WIC program centers enrolled in FMNP (N=24,800), 73% reported eating more fresh produce because of the farmers' market vouchers.</li> <li>Kropf et al found that WIC participants enrolled in FMNP (who received \$18 per recipient per season in farmers' market coupons) reported eating slightly more vegetables (2.2 vs 1.9 servings per day, <math>P=0.04</math>), but not fruit (<math>P=0.77</math>) than WIC participants not enrolled in FMNP (N=1075).</li> <li>Similarly, Galfond et al found that WIC participants who received farmers' market coupons reported higher average fruit and vegetable intake than those who didn't receive coupons (N=2725).</li> <li>A 4th study evaluated only perceived food security.</li> </ul> <p>FMNP quasi-experimental:</p> <ul style="list-style-type: none"> <li>2 of 3 studies (N=455, N=216, N=603) showed increased fruit and vegetable</li> </ul>

					<p>consumption among WIC participants who were given farmers' market coupons, compared with controls. One successful intervention provided \$20 once and the other \$10 per week for 6 mo. The intervention showing no effect provided \$10 once.</p> <p>Senior farmers' market cross-sectional:</p> <ul style="list-style-type: none"> <li>• 3 small cross-sectional surveys (N=658, N≈300, N=124) found that program participants reported greater intention to eat more fruits and vegetables or attendance at farmers' markets because of the program (coupons ranging from \$5 to \$50 once). No controls.</li> </ul> <p>Senior farmers' market quasi-experimental:</p> <ul style="list-style-type: none"> <li>• Both studies evaluated provision of free market baskets to homes, which does not test neighborhood availability of farmers' markets.</li> </ul> <p>4 additional studies on community gardens were identified, as summarized in the next section of this Table, below.</p>
Racine et al, 2010 <sup>320</sup>	Observational, cross-sectional	N=179 black women who were pregnant and enrolling in WIC in Washington, DC (N=71), which offers the FMNP, or Charlotte, NC (N=108), which does not	May–June 2007	Women were surveyed about past participation and dietary habits.	Adjusting for city of residence, women who reported prior participation in the FMNP reported higher intake of fruits and vegetables ( $P<0.01$ ).
Freedman et al, 2011 <sup>321</sup>	Quasi-experimental (pre-/postintervention)	N=221 adults or children participating in a local farmers' market initiative who completed at least 1 survey	June–August 2008	34 farmers' markets (average 2 h per week) were held at 4 Boys and Girls Clubs over 1 summer. Educational programs were held at the clubs, youth were directly involved in setting up and running each farmers' market, and food-related field trips were taken. Vouchers (up to \$20) were provided to community members for use at the markets. Effects on attitudes were assessed by surveys.	<ul style="list-style-type: none"> <li>• Participants reported positive attitudes about the farmers' markets as both a learning opportunity and exposure to fresh foods for children.</li> </ul>



Jilcott et al, 2010 <sup>297</sup>	Observational, cross-sectional	3106 counties in all 50 states	2007-2009 market/store data, 2006-2008 BRFSS data	The USDA Food Environment Atlas was used to map per capita farmers' markets, grocery stores/supermarkets, and supercenters in each county. County prevalence of adult obesity was also obtained from the Atlas, based on BRFSS. Results were stratified by whether the county was rural (no cities with >50,000 residents) or metropolitan (all others).	After adjustment for county-level race, age, median income, and natural amenities (topography, climate, water access): <ul style="list-style-type: none"> <li>No significant associations were seen for farmers' markets overall. In rural counties, per capita density of farmers' markets was inversely associated with obesity: per each 7/100,000 greater farmers' markets, obesity prevalence was 0.07% lower (<math>P=0.049</math>).</li> <li>When all 3 types of outlets were considered together, densities of stores/supermarkets and supercenters, but not farmers' markets, were independently associated with lower obesity.</li> <li>Findings for grocery stores/supermarkets and supercenters are described above in this same Table, in the section on supermarkets, grocery stores, and convenience stores.</li> </ul>
Salois, 2011 <sup>298</sup>	Observational, cross-sectional	Ecological (county-level) analysis including 3051 counties in all 50 states	2007	The USDA Food Environment Atlas was used to map per capita density of farmers' markets, grocery stores, supermarkets, supercenters, fast-food outlets, and full-service restaurants in each county. County prevalences of adult obesity and diabetes were also obtained from the Atlas, based on BRFSS.	After adjustment for county-level race, median income, poverty, recreational and fitness centers, natural amenities, travel distance/challenges, direct farm sales per capita, and each of the different food outlets: <ul style="list-style-type: none"> <li>Per capita density of farmers' markets was inversely associated with prevalent diabetes but was not significantly associated with prevalent obesity.</li> <li>Densities of fast-food outlets and convenience stores were each associated with higher diabetes, but not obesity.</li> <li>Density of full-service restaurants was associated with lower obesity and diabetes.</li> <li>Density of superstores was associated with more obesity but not diabetes.</li> </ul>
Leung et al, 2011 <sup>299</sup>	Observational, longitudinal	N=353 girls, age 6-7 y, recruited from a health maintenance organization in Northern California	2005-2008	This prospective study examined the relation of neighborhood food stores with 3-y risk of overweight/obesity and change in BMI. Per capita density of food stores was identified from 2006 data from InfoUSA, a commercial database. Stores were classified	After adjustment for baseline BMI/weight and family sociodemographics: <ul style="list-style-type: none"> <li>Within a 0.4-km buffer, availability of farmers' markets was not associated with risk of overweight/obesity or change in BMI z score.</li> <li>Within a 1.6-km buffer, availability of</li> </ul>

				<p>according to industry codes into 9 separate categories, including convenience stores, drug stores, fast-food outlets, farmers' markets, full-service restaurants, small grocery stores, specialty stores, specific food store venues, and supermarkets. Neighborhoods were assessed at 0.4 and 1.6-km buffers around homes. BMI was measured.</p>	<p>farmers' markets was inversely associated with overweight/obesity (OR=0.22; 95% CI, 0.05, 1.06) but not with change in BMI z score (<math>P&gt;0.10</math>).</p> <ul style="list-style-type: none"> <li>• Convenience stores within 0.4 km were associated with a higher risk of overweight/obesity and increase in BMI z score (see that separate section in this Table above).</li> <li>• No other significant relations were seen.</li> </ul>
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**Accessibility to Community Gardens**

Author, y	Design	Population	Duration	Intervention/Evaluation	Major Findings
McCormack et al, 2010 <sup>319</sup>	Systematic review of peer-reviewed US studies	4 US studies evaluating community gardens and various diet-related outcomes, including fruit and vegetable intake (most studies) and other foods/drinks (1 study)	Studies published between January 1980 and January 2009	Four observational studies were identified, and 3 of these are described below. The 4th study, by Blair et al, compared 144 gardeners with 67 nongardeners in Pennsylvania.	<ul style="list-style-type: none"> <li>• Blair et al found that gardeners reported eating more vegetables than nongardeners.</li> </ul>
Alaimo et al, 2008 <sup>322</sup>	Observational, cross-sectional	N=766 adult residents of Flint, Michigan, identified by random phone survey	2003	This study examined the relation between household participation in a community garden and fruit and vegetable consumption. Fruit and vegetable intake was measured using the BRFSS questionnaire, and household participation in a community garden was assessed by direct query from the respondent.	<p>After adjustment for demographics, neighborhood participation, and health characteristics:</p> <ul style="list-style-type: none"> <li>• Adults with a household member who participated in a community garden ate fruits and vegetables 1.4 more times per day than those who did not participate, and they were 3.5 times more likely to eat fruits and vegetables at least 5 times daily.</li> </ul>
Lackey et al, 1998 <sup>323</sup>	Observational, cross-sectional	N=123 gardeners and 123 community controls from a community garden sponsored by the University of Wisconsin Cooperative Extension	1997	This study evaluated a university program that included rental gardens, youth gardens, and gardens designed for food pantry clientele. The evaluation sample included at least 1 typical garden from each category with a minimum of 15 easily accessible clients. Qualitative data were collected (document reviews, participant	<ul style="list-style-type: none"> <li>• Gardeners reported eating a greater variety of vegetables and more vegetable servings compared with nongardeners.</li> <li>• Gardeners were also more likely than nongardeners to agree with the statement, "In the past 4 mo, I have eaten a balanced diet most days from the food pyramid (which includes breads/cereals, fruit/vegetables, meat/fish/beans, and</li> </ul>

				observations at gardens, interviews with program stakeholders). Posttest surveys were administered to 123 gardeners (79% were at least 18 y of age), and 123 matched nongardeners sampled based on individual gardener characteristics, geographic area, and garden type. Participants self-reported vegetable servings eaten in the previous 24 h.	dairy products).”
Johnson and Smith, 2006 <sup>324</sup>	Quasi experimental	N=61 community garden participants in Moses Lake, Washington	2003-2004	This study evaluated a pilot program that aimed to create and support a healthy environment through development of a community garden, as well as walking trails and community breastfeeding facilities. Evaluation surveys were given to community garden participants. Survey details and data collection methods were not described in detail.	<ul style="list-style-type: none"> <li>• More than half of gardeners reported eating more fruits and vegetables while participating in the garden.</li> </ul>

### In-Store Availability of Different Foods

Author, y	Design	Population	Duration	Intervention/Evaluation	Major Findings
Cheadle et al, 1993 <sup>313</sup>	Observational, serial cross-sectional	N≈6000 residents of 11 communities in California and 1 community in Hawaii	2 cross-sectional surveys in 1988 and 1990	In-store surveys were conducted to measure the percentage of shelf space devoted to red meat, low-fat milk products, and dark breads. Dietary intakes were assessed by telephone interview FFQ of ≈500 residents in each community living in the same catchment area as these stores.	<p>In crude (unadjusted) analyses:</p> <ul style="list-style-type: none"> <li>• Cross-sectionally, positive correlations were found between individuals’ consumption (days per week) and percentage of shelf space devoted to red meat (<math>r=0.59</math>, <math>P=0.04</math>), reduced-fat milk (<math>r=0.64</math>, <math>P=0.03</math>), and dark bread (<math>r=0.52</math>, <math>P=0.08</math>).</li> <li>• No significant correlations were found between changes in shelf space and changes in dietary intake over time between 1988 and 1990.</li> </ul>
Fisher et al, 1999 <sup>314</sup>	Observational, cross-sectional	N=503 randomly selected stores of 53 ZIP codes and 250 randomly selected residents of 19 of these ZIP codes in 7 New York counties, representing large	1994-1996	This study examined the relation between the proportion of low-fat (skim or 1%) milk in food stores and the presence of low-fat milk at home. Surveys were conducted in randomly selected stores from the same areas as the residents to assess the proportion of all milk on shelves	<p>In crude (unadjusted) analyses:</p> <ul style="list-style-type: none"> <li>• The proportion of low-fat milk in stores was directly related to the presence of low-fat milk in households (slope=0.81; 95% CI, 0.58, 1.07).</li> </ul>

		metropolitan, mid-size urban, and rural areas		that was low-fat. Phone interviews assessed the type of milk present or usually present in the home refrigerator.	
Edmonds et al, 2001 <sup>315</sup>	Observational, cross-sectional	N=172 black Boy Scouts, age 11-14 y, in Houston, Texas	Not reported	This study evaluated the relation between the boys' consumption of fruits, vegetables, and juice and local (census tract) availability in grocery stores (absolute amount of shelf space), restaurants (on the menu), and their own homes.	<ul style="list-style-type: none"> <li>In analyses adjusting only for census tract black median income, restaurant availability of vegetables and fruit juices was significantly associated with intake of these foods (partial correlations=0.72 and 0.70, respectively, <math>P&lt;0.05</math> each).</li> <li>In both crude (unadjusted) analyses and full multivariable analyses, none of the environmental predictors were significantly associated with intake of any of these foods.</li> </ul>
Bodor et al, 2008 <sup>316</sup>	Observational, cross-sectional	N=102 randomly selected households in 4 contiguous census tracts in central New Orleans, Louisiana	2001	This study examined the relation of distance to and linear shelf space in neighborhood supermarkets and fruit and vegetable consumption. Telephone interviews and a modified 24-h recall instrument were used to assess fruit and vegetable consumption.	<p>After adjustment for age, gender, race/ethnicity, income, food assistance participation, car ownership, and distance to the nearest supermarket, associations were only seen for supermarkets very close (within 100 m) to home:</p> <ul style="list-style-type: none"> <li>When fresh vegetable shelf space was <math>&gt;3</math> m, mean vegetable intake was <math>4.5\pm 2.4</math> servings per day, compared with <math>2.4\pm 1.6</math> when there was no fresh vegetable shelf space (<math>P&lt;0.05</math>).</li> <li>No significant relation was found between shelf space and fruit intake.</li> </ul>
Auchincloss et al, 2008 <sup>317</sup>	Observational, cross-sectional	For person-level data, N=2026 adults, age 45-84 y, in the MESA cohort; for area-level data, N=5988 adults living in the same geographic regions in the Community Survey	2004	This study evaluated the relation of neighborhood resources with insulin resistance (homeostasis model assessment index). Data on person-level factors were obtained from clinic examination. Measures of area resources were obtained from a separate, population-based, random-digit-dialing telephone survey. Healthy food resources were derived from self-reported responses to 3 questions (eg, "A large selection of fresh fruits and vegetables is available in my neighborhood"; "A large selection of low-fat foods is	<p>After adjustment for age, sex, family history of diabetes, income, and education:</p> <ul style="list-style-type: none"> <li>Greater healthy food resources were inversely related to insulin resistance, with 15% lower insulin resistance across the interdecile range (90th vs 10th percentile). The association was no longer statistically significant after adjustment for race/ethnicity.</li> <li>Findings for neighborhood physical activity resources are described in Supplementary Table 11.</li> <li>Greater physical activity resources were inversely related to insulin resistance, with 23% lower insulin</li> </ul>

				available in my neighborhood”); and physical activity resources from 6 questions (eg, “My neighborhood offers many opportunities to be physically active”; “It is pleasant to walk in my neighborhood”).	resistance across the interdecile range (90th vs 10th percentile). The association remained significant after adjustment for race/ethnicity.
Rose et al, 2009 <sup>318</sup>	Observational, cross-sectional	N=1243 residents of the 28-county area of southeastern Louisiana	2004-2005	This study assessed shelf space for fruits and vegetables and energy-dense snack foods (candies, pastries, cookies, sodas, and salty snacks) in a random sample of 103 urban census tracts in a 28-county area. The neighborhood food environment was evaluated at 500 m, 1 km, and 2 km, from respondents’ homes. Random-digit-dialed phone interviews assessed self-reported height and weight and other sociodemographic variables.	After adjustment for age, gender, race/ethnicity, income, education, and car ownership: <ul style="list-style-type: none"> <li>• Neighborhood shelf space for fruits and vegetables was not associated with BMI.</li> <li>• Neighborhood shelf space for energy-dense snack foods, particularly within 1 km of home, was positively associated with BMI. Each 10-m increase in shelf space was associated with 0.01 higher BMI (<math>P&lt;0.05</math>).</li> </ul>

ARIC indicates Atherosclerosis Risk in Communities; FFQ, food-frequency questionnaire; RR, relative risk; CI, confidence interval; PIN, Pregnancy, Infection and Nutrition study; USDA, US Department of Agriculture; RDA, recommended daily allowance; AI, adequate intake; OR, odds ratio; ECLS-K, Early Childhood Longitudinal Study—Kindergarten Class; BMI, body mass index; CVD, cardiovascular disease; SES, socioeconomic status; BRFSS, Behavioral Risk Factor Surveillance System; MESA, Multi-Ethnic Study of Atherosclerosis; AHEI, Alternate Healthy Eating Index; FPM, fats and processed meats; ERS, Economic Research Service; CARDIA, Coronary Artery Risk Development in Young Adults; GIS, geographical information systems; WIC, Women, Infants, and Children Program; SD, standard deviation; RFEI, Retail Food Environment Index; NETS, National Establishment Time-Series; FMNP, Farmers Market Nutrition Program; and SFMNP, Senior Farmers Market Nutrition Program.

Note: Reference numbers (eg, Morland et al, 2002<sup>278</sup>) appearing in this supplementary table correspond with those listed in the reference section of the statement. For the purposes of this supplementary table, these meta-analyses or systematic reviews (see "Author, y" column) are considered the primary citation. Additional studies mentioned in the primary citation may be included in the "Intervention/Exposure" and "Findings" columns. The additional studies can be accessed through the primary citation.