

Physical Activity: Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone

Summary Evidence Table

This table outlines information from the studies included in the Community Guide systematic review of Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone. It details study quality, population and intervention characteristics, and study outcomes considered in this review. Complete references for each study can be found in the Included Studies section of the [review summary](#).

Abbreviations Used in This Document:

- Intervention components
 - PA: physical activity
- Measurement terms
 - RR: Relative risk or relative risk ratio
 - OR: Odds ratio
 - CI: confidence interval
 - METs: metabolic equivalent of task
 - hr: hour
 - min: minute
 - MVPA: moderate-to-vigorous physical activity
 - LPA: light physical activity
 - pct pts: percentage points
 - wk: week
 - yrs: years
 - m: month or months
 - SD: Standard deviation
 - SE: Standard error
 - GPS: Global Positioning System
 - GIS: Geographic information system
 - USD: United States dollars
 - SOPARC: System for Observing Play and Recreation in Communities
- Study design
 - RCT: randomized trial
- Other terms:
 - NA: not applicable
 - NR: not reported
 - NS: not significant
 - f/u: follow-up
 - SES: socioeconomic status
- Study groups
 - Int: Intervention
 - Cont: Control
 - Comp: Comparison

Appendix A: Additional Study Outcomes

Notes

- **Suitability of design** includes three categories: greatest, moderate, or least suitable design. [Read more](#)
- **Quality of Execution** – Studies are assessed to have good, fair, or limited quality of execution. [Read more](#)
- **Race/ethnicity and SES** of the study population: The Community Guide only summarizes race/ethnicity and SES for studies conducted in the United States.
- Tables and figures listed in this document can be found in the associated publication.

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
<p>Author, year: Andersen et al. 2017</p> <p>Location: Denmark, Copenhagen</p> <p>Design: Before/after without a comparison</p> <p>Suitability rating: Least</p> <p>Intervention duration: Ongoing</p> <p>Study timeframe (Int to last follow up): 7 to 12 months</p> <p>(Pre: between April 2010 and September 2011 Post: between April and September 2012)</p> <p>Table 2: Baseline Spring 2010 (one school September 2011); follow-up Spring 2012</p> <p>Year(s) study was implemented: April 2010-September 2012. Note: if post data were collected in Spring 2012 (as stated under Table</p>	<p>Setting: Parks and related playgrounds in four public schools in or just outside the Haraldsgade district (nearly 9,300 people lived in the district including 1,800 children)</p> <p>Geographic scale: Urban</p> <p>Study population: Adolescents aged 11–16 years (Grades 5–8)</p> <p>Eligibility and Recruitment: Parents received information about the study, including that participation was voluntary. Participants excluded if too little wear time on the measurement device or spent <10 minutes in the defined district.</p> <p>Sample size: Baseline enrolled 84% n=523 adolescents Post-renewal enrolled 87% n=547 adolescents</p>	<p>Description: When Cities Move Children’s study. Multicomponent urban renewal project of approximately 35 million Euros in a disadvantaged neighborhood.</p> <p>Infrastructure interventions: Park-based: Yes; renovation of a large public park (Fælledparken) sports facilities Greenways/trails: No Playgrounds: Yes; 4 new urban green spaces and playgrounds Urban greening: Yes; renovation or establishment of new of greenspaces Other: Urban renewal -renovation of public housing and courtyards -opening of two civic centers offering social gatherings and sport activities</p> <p>The establishment of a new public space (Superkilen) took place just outside the district</p> <p>Exposure Measurement: Buffered at 400 meters to reflect the area within which people could walk to the renovated sites within about 5 minutes (Figure 1)</p> <p>Comparison: NA</p>	<p>Description: Physical activity: MVPA and LPA</p> <p>Park use: NR</p> <p>Health, mental health, well-being: NR</p> <p>Social outcomes: NR</p> <p>Injury: NR</p> <p>Quality of life: NR</p> <p>Weight related (BMI): see Appendix A</p> <p>Environmental outcomes: NR</p> <p>Additional/other outcomes: sedentary behavior (see Appendix A)</p> <p>Outcome Measurement MVPA and LPA Instrument: Accelerometer, GPS, and GIS data Measure was minutes per day. Wore the accelerometer and GPS for 7 consecutive days, short reminder text messages were sent to adolescents’ mobile phones twice a day to increase compliance of wearing the measurement equipment.</p>	<p>Physical activity in the location: MVPA in minutes per day within the district/urban renewal area Baseline Int (n=354): 1.5 12-month follow-up Int (n=319): 3.5 Change in mean difference: Adjusted: +4.5 min/day (95% CI 1.8–7.2) p<0.001 (Table 2) Relative % change: +133.3%</p> <p>Adolescents at baseline spent a median of 59.4 total (in all locations) minutes daily in MVPA and 59.9 minutes at post-renewal (p=0.98; Table 1)</p> <p>Other measures of physical activity LPA in minutes per day within the district/urban renewal area Baseline Int (n=354): 12.3 12-month follow-up Int (n=319): 28.6 Change in mean difference: Adjusted +7.8 min/day (95% CI 1.1–14.7) p=0.012 (Table 2) Relative % change: +132.5%</p> <p>No effect moderation was found for gender and age groups or between the adolescents living within and outside of the district in time spent and activity level in the district (results not shown).</p> <p>Models used: General linear mixed model (differences in the time spent in</p>

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<p>2) the end date would be Spring 2012.</p> <p>Quality of Execution: Fair Limitation(s): 4</p>	<table border="0"> <tr> <td style="padding-right: 20px;">Baseline</td> <td style="padding-right: 20px;">Post</td> </tr> <tr> <td>Participants 523</td> <td>547</td> </tr> <tr> <td>Excluded 169</td> <td>228</td> </tr> <tr> <td>Follow up 354</td> <td>319</td> </tr> <tr> <td colspan="2"> % lost to f/u 32.3% 41.6% </td> </tr> </table> <p>Reported Baseline Demographics: Individual Level (intervention group): Age (mean): 13.2 yrs Sex: Female: 53%; Male: 47% Race/ethnicity: Both parents' Danish citizen 59% Education: NR Low income: Income, yearly, USD 22,987\$ (No proportion reported)</p> <p>Neighborhood or community level: SES (overall): 72% immigrants to Denmark or children of immigrants. About half of the people living in the area reside in low rent public housing.</p>	Baseline	Post	Participants 523	547	Excluded 169	228	Follow up 354	319	% lost to f/u 32.3% 41.6%			<p>Time spent in the district was defined as time when adolescents were not at home, not at school, and not transporting themselves, but present in the district.</p>	<p>the district and different activity levels before and after the urban renewal).</p> <p>Other variables controlled for in study: Age, gender, BMI, week-weekend day, number of valid days, daily wear time, and home in or out of the district, school, class, time and activity per day.</p> <p>SUMMARY: Multicomponent urban renewal intervention with parks and green space in a disadvantaged district increased MVPA and LPA in adolescents when they were in the area of the urban renewal.</p>
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<p>Author, year: Bohn-Goldbaum et al. 2013</p> <p>Location: Australia, Sydney</p>	<p>Setting: Playground in community park</p>	<p>Description: Renovation of the playground in a public park (evaluation restricted to playground); 3 smaller</p>	<p>Description: Physical activity: Yes Park use: Yes</p>	<p>Physical activity in the location: Mean number of children engaged in MVPA per 2-hour observation period Baseline Int (n=84 scans): 1.17</p>										

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<p>Design: Other design with concurrent comparison</p> <p>Suitability rating: Greatest</p> <p>Intervention duration: 9 months post renovation</p> <p>Study timeframe (Int to last follow up): Post measures were 9 months after renovations</p> <p>Year(s) study was implemented: May 2007-May 2009</p> <p>Quality of Execution: Fair Limitation(s): 3</p>	<p>Geographic scale: Urban (one neighborhood)</p> <p>Study population: Children ages 2-12 observed at study playgrounds</p> <p>Eligibility and Recruitment: Children observed at study playgrounds using the System for Observing Play and Recreation in Communities (SOPARC) methods adapted for use in Sydney; excluded infants from observations</p> <p>Sample size: Intervention playground: 1 Selected comparable control playground: 1</p> <p>Reported Baseline Demographics: Individual level: Age (range): children 2-12 Sex: Female: NR; Male: NR Race/ethnicity: NR Education: NR Low income: NR</p>	<p>playgrounds replaced the one central playground</p> <p>Infrastructure interventions: Park-based: Yes; intervention park improvements were made (study focused on use and activity at playground portions). Baseline park included playground, open space, and sports field. Improvements included upgraded paths, new greenery, lighting, seating, and opening sports field to public use. Greenways/trails: No Playgrounds: Yes; three smaller playgrounds (with features to appeal to different age groups) Replaced on central playground -Public art -Aboriginal theme -Water play feature -climbing poles -basketball/skating space</p> <p>Exposure measurement: Use of playground</p> <p>Comparison: Park playground without renovation</p> <p>Note: intervention and comparison sites each had several small standalone playgrounds within walking distance; comparison park had a childcare facility close by</p>	<p>Health, mental health, well-being: NR</p> <p>Social outcomes: NR</p> <p>Injury: NR</p> <p>Quality of life: NR</p> <p>Weight related (BMI): NR</p> <p>Environmental outcomes: NR</p> <p>Additional/other outcomes: NR</p> <p>Outcome Measurement: Instrument: SOPARC methodology (momentary time sampling) Proportion of observed children engaging in MVPA at the study playgrounds Park use by daily mean number of children visiting playgrounds</p> <p>Note: study included park intercept surveys of parents (Table 3 not reported here)</p>	<p>Comp (n=84 scans): 2.86 9-month post renovation follow-up Int (n=NR): 0.67 Comp (mean (n=80 scans): 1.98 Change in mean number of children in MVPA: +0.38 (95% CI NR) p=NR (Playground mean numbers were significantly different from each other at baseline; and 9m post renovation) Relative % change: -12.0%</p> <p>Subset comparison Boys: +0.72 children in MVPA difference NR Girls: +0.05 children in MVPA difference NR (intervention park girls MVPA decrease was significant)</p> <p>PA level of children of playground intervention Park A users (parental proxy; Table 4) Post-only Sufficient activity: 55.2% Insufficient activity: 44.8% Sufficient PA was defined as attaining the recommended daily hour of MVPA</p> <p>Park use Children’s playground usage: Mean number of children observed at playground per 2-hour observation period Baseline Int (n=84 scans): 4.5 Comp (n=84 scans): 8.52 9-month follow-up post renovation Int (n=NR): 4.98 Comp (n=80 scans): 6.69</p>

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	<p>Neighborhood or community level: NR</p>			<p>Change in mean number of children observed at playground during 2-hour observation: +2.3 (95% CI NR) p=NR (Playground mean numbers were significantly different from each other at baseline, but not at follow up) Relative % change: +32.1%</p> <p>Subset comparison Boys: +1.4 boys using playground Girls: +3.3 girls using playground Differences were reported as not significant</p> <p>Models used: Generalized linear model</p> <p>Other variables controlled for in study: park, time, gender</p> <p>SUMMARY: Playground renovations in an urban lower SES neighborhood park increased observed numbers of children using the playground but showed no or little change in the numbers of children engaged in MVPA. Differences in use and MVPA were not statistically significant.</p> <p>Renovations replaced an existing playground, and rates of use at the comparison playground were significantly higher at baseline, reducing the likelihood that this study would find meaningful differences post renovation.</p>

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Park, Trail, Greenway				
<p>Author, year: Buller et al. 2017</p> <p>Location: USA: Denver, Colorado; Melbourne, Australia</p> <p>Design: Group randomized trial</p> <p>Suitability rating: Greatest</p> <p>Intervention duration: Sustained (ongoing)</p> <p>Study timeframe (Int to last follow up): Not reported and likely variable across study parks</p> <p>Year(s) study was implemented: 2010-2014</p> <p>Quality of Execution: Fair Limitation(s): 3</p>	<p>Setting: City parks</p> <p>Geographic scale: Urban and suburban (with over a 100 parks)</p> <p>Study population: -Enrolled study parks -Observed users of study park passive recreation areas</p> <p>Eligibility and Recruitment: Parks with at least two similar passive recreation areas; parks with passive recreation areas unable or unwilling to implement shade sail coverage excluded</p> <p>Sample size: Selected and recruited parks with passive recreation areas N=144 parks Intervention areas: 36 Control areas: 108</p> <p>Reported Baseline Demographics: Individual level: NR Age: NR Sex: NR Race/ethnicity: NR Education: NR Low income: NR</p>	<p>Description: Shade sails installed in a passive recreation area to provide shade for use by people in the park</p> <p>Infrastructure interventions: Park-based: Yes, shade sail provided shade in one passive recreation area of the park Greenways/trails: No Playgrounds: No Other: Shade sail improvement</p> <p>Exposure measurement: Park enhancement evaluated through observed use</p> <p>Comparison: Passive recreation area in study park that did not receive shade sail</p>	<p>Description: Physical activity: NR Park use: Yes</p> <p>Health, mental health, well-being: NR, but shade use is a skin cancer prevention behavior</p> <p>Social outcomes: NR</p> <p>Injury: NR</p> <p>Quality of life: NR</p> <p>Weight related (BMI): NR</p> <p>Environmental outcomes: NR</p> <p>Additional/other outcomes: NR</p> <p>Outcome Measurement: Instrument: Direct observation Observer documented observation time in which study areas were in use by at least one park visitor</p> <p>Observed park use of passive recreation areas by adults</p>	<p>Park use: Adjusted probability of use (at least one user) of study passive recreation areas during observation periods Baseline Int (n=144): 0.10 Comp (n=432): 0.14 Duration of follow-up unclear (ongoing) Int (n=144): 0.32 Comp (n=432): 0.17 Difference in probability of use: +0.19 percentage points (95% CI NR) p=NR Adjusted OR =3.91 (95%CI 1.71,8.94) Relative % change: +198.6%</p> <p>Shade area use increased significantly more in Denver study parks than in Melbourne study parks</p> <p>Models used: Logistic regression with generalized estimating equations</p> <p>Other variables controlled for in study: enrollment wave, weather, use of comparison area, age, race of neighborhood residents</p> <p>SUMMARY: Addition of shade sails to passive recreation areas significantly increased the proportion of observation periods in which the study area was in use. However, numbers of users in study areas were very low.</p>

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	<p>Neighborhood or community level: Population: Mean age of residents (average between Melbourne and Denver): 36.6 yrs. Race/ethnicity White: 50% SES (Socioeconomic status tertiles by index area score): Low 33.3% Middle 33.3% High 33.3% Other: employed 67%</p>																																																			
<p>Author, year: Burbidge et al. 2009</p> <p>Location: USA: West Valley City, Utah</p> <p>Design: Before/after without a comparison</p> <p>Suitability rating: Least</p> <p>Intervention duration: Intervention is ongoing, but duration of study was 5 months</p> <p>Study timeframe (Int to last follow up): 5 months</p>	<p>Setting: Greenway/trail with multiuse trail separated from existing roads and sidewalks on the existing canal right-of-way</p> <p>Geographic scale: Suburban area (one neighborhood)</p> <p>Study population: Residents of the Academy Park neighborhood in West Valley City, Utah</p> <p>Eligibility and Recruitment: Residents recruited through household questionnaire</p>	<p>Description: A 2.5-mile (4.025-km) loop Class 1 multiuse trail connecting two existing sidewalks with the trail serving the public as both a transportation and recreation facility</p> <p>Infrastructure Interventions: Park-based: No Greenways/trails: Yes; installed new neighborhood trail along an existing irrigation canal Playgrounds: No</p> <p>Exposure measurement: Participants in the neighborhood</p> <p>Comparison: NA</p> <p>AD: Activity diary AD1: completed before the trail's construction (February 2007)</p>	<p>Description: Physical activity: Yes, total PA and active travel behavior</p> <p>Park use: NR</p> <p>Health, mental health, well-being: NR</p> <p>Social outcomes: NR</p> <p>Injury: NR</p> <p>Quality of life: NR</p> <p>Weight related (BMI): NR</p> <p>Environmental outcomes: No</p> <p>Additional/other outcomes: Yes; residential proximity and trip duration by activity type (not shown)</p>	<p>Total physical activity:</p> <table border="0"> <tr> <td>Table 4</td> <td>AD1</td> <td>AD2</td> <td>p-Value</td> </tr> <tr> <td>Total PA (episodes)</td> <td>0.86</td> <td>0.74</td> <td>0.370</td> </tr> <tr> <td>Total PA (minutes)</td> <td>29.7</td> <td>35.7</td> <td>0.347</td> </tr> </table> <table border="0"> <tr> <td></td> <td>AD1</td> <td>AD3</td> <td>p-Value</td> </tr> <tr> <td>Total PA (episodes)</td> <td>0.90</td> <td>0.65</td> <td>0.036</td> </tr> <tr> <td>Total PA (minutes)</td> <td>32.5</td> <td>30.6</td> <td>0.742</td> </tr> </table> <p>AD3 vs AD1 net mean difference total PA episodes: -0.25 AD3 vs AD1 net mean difference total PA minutes: -1.9</p> <p>Other measures of PA:</p> <table border="0"> <tr> <td>Table 4</td> <td>AD1</td> <td>AD2</td> <td>p-Value</td> </tr> <tr> <td>Total walking trips</td> <td>0.59</td> <td>0.50</td> <td>0.447</td> </tr> <tr> <td>Total biking trips</td> <td>0.03</td> <td>0.03</td> <td>1.000</td> </tr> </table> <table border="0"> <tr> <td></td> <td>AD1</td> <td>AD3</td> <td>p-Value</td> </tr> <tr> <td>Total walking trips</td> <td>0.64</td> <td>0.38</td> <td>0.008</td> </tr> <tr> <td>Total biking trips</td> <td>0.00</td> <td>0.01</td> <td>0.320</td> </tr> </table> <p>AD3 vs AD1 net mean difference walking trips: -0.26</p>	Table 4	AD1	AD2	p-Value	Total PA (episodes)	0.86	0.74	0.370	Total PA (minutes)	29.7	35.7	0.347		AD1	AD3	p-Value	Total PA (episodes)	0.90	0.65	0.036	Total PA (minutes)	32.5	30.6	0.742	Table 4	AD1	AD2	p-Value	Total walking trips	0.59	0.50	0.447	Total biking trips	0.03	0.03	1.000		AD1	AD3	p-Value	Total walking trips	0.64	0.38	0.008	Total biking trips	0.00	0.01	0.320
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Park, Trail, Greenway				
<p>Year(s) study was implemented: October 2006 to February 2008</p> <p>Quality of Execution: Fair Limitation(s): 4</p>	<p>Neighborhood residents living within 1 mile of the proposed trail</p> <p>Sample size: #of individuals over five years of age: 82 # of households: 32 (active diaries)</p> <p>Reported Baseline Demographics: Individual level (Int study sample): Age (mean): 47.8 years Sex: Female: 54.9%; Male: 45.1% Race/ethnicity: NR Education: NR Low income: Total combined household income ≤40,000: 37.8%</p> <p>Neighborhood or community level: Population: 11,790 Race/ethnicity: NR SES: Total combined household income ≤40,000: 41.2%</p>	<p>AD2: completed immediately (within 1 month) following the trail’s construction (October 2007) AD3 was completed 5 months after the trail’s construction (February 2008)</p>	<p>Outcome Measurement: Physical activity Instrument: Household questionnaire and 3 activity diary data collection waves measured individual behavior</p> <p>Activity diary allowed for identification of PA accumulated through means other than transportation (e.g., exercise at home)</p> <p>Initial household survey AD1: 175 individuals AD2: 144 individuals AD3: 107 individuals</p> <p>Residential proximity (new household survey concurrent with AD2, AD3) - Asked new residents if the trail drew them to the neighborhood</p>	<p>AD3 vs AD1 net mean difference biking trips: 0.0</p> <p>Panel analysis total PA and active trips (Table 5): Installation of the trail had no significant impact on active travel behavior or PA in the sample in the short term from AD1 to AD2. Between AD1 and AD3, there was a significant decrease in the total number of PA episodes as well as a significant reduction in the number of walking trips taken.</p> <p>Additional analysis controlling for multiple factors showed participants between ages of 18 and 64 significantly increased their total number of PA episodes between AD1 and AD3 ($\beta=0.56$, $p = .024$).</p> <p>Models used: Panel analysis</p> <p>Other variables controlled for in study: age, sex, household income, driver’s license possession, number of children in the household, number of household cars, residential distance from the trail, employment status, completion day, and seasonal variation Also reported impact of residential proximity.</p> <p>SUMMARY: The construction of a trail in a suburban neighborhood setting did not have a significant increase on active travel behavior or PA levels of</p>

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Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
<p>Author, year: Cohen et al. 2009</p> <p>Location: USA: Los Angeles, California</p> <p>Design: Other design with concurrent comparison</p> <p>Suitability rating: Greatest</p> <p>Intervention duration: Sustained (renovations)</p> <p>Study timeframe (Int to last follow up): 1 month and 3 months for skate park and senior center respectively</p> <p>Year(s) study was implemented: NR</p> <p>Quality of Execution: Fair Limitation(s): 4</p>	<p>Setting: Facilities within large neighborhood parks</p> <p>Geographic scale: Urban (4 parks within Los Angeles park system)</p> <p>Study population: Study parks: 4 Intervention parks: 2 Comparison parks: 2</p> <p>Observed park users (results) Park survey participants. Household survey participants (no results to report)</p> <p>Eligibility and Recruitment: Park user observed during SOPARC observation periods; residents living within a 2-mile radius of each park</p> <p>Sample: SOPARC and survey sample sizes were not reported, nor were demographic characteristics reported</p>	<p>Description: Renovations to existing park facilities in urban neighborhoods</p> <p>Renovations took 2 years in each park</p> <p>The Cohen paper evaluated the skate park and senior center infrastructure interventions separately</p> <p>Infrastructure interventions: Park-based: Yes; specific improvements including 1) Expanded skate park 2) Remodeled senior center with new exercise equipment Greenways/trails: No Playgrounds: No Other: Yes; new exercise equipment in senior center</p> <p>Exposure measurement: Observed park users Intercept interviews of park users Random household interviews in surrounding neighborhoods</p> <p>Comparison: Selected parks without renovations over period of study</p>	<p>Description: Physical activity: Yes Park use: Yes Health, mental health, well-being: NR Social outcomes: NR Injury: NR Quality of life: NR Weight related: NR Environmental outcomes: NR Additional/other outcomes: NR</p> <p>Outcome Measurement: Physical activity Instrument: SOPARC Observed use and activity level (7-day observation periods at baseline and at follow up)</p> <p>15 target areas skate area (skate ramps and bowls were divided into smaller areas)</p> <p>14 to 20 target areas senior centers (gyms, lawn spaces, and courtyards)</p>	<p>neighborhood residents in the short term.</p> <p>Physical activity in the location (Skate Park): Proportion of skate park users engaging in MVPA (Figure 2 estimate) Baseline Int (n=NR): 55% Comp (n=NR): 64% Follow-up: 1 month after opening Int (n=NR): 62% Comp (n=NR): 50% Change in proportion of skate park users in MVPA: +21 percentage points (95% CI NR) p=NR Relative % change: +35%</p> <p>Park use (Skate park): Number of park facility users determined by SOPARC observations Intervention: Skate Park renovation (estimated from figure 1 plot) Int (n=1): 280 Comp (n=1): 215 Follow-up: 1 month after opening Int (n=1): 1680 Comp (n=1): 390 Absolute change in observed users: +1225 users per 7-day observation period (95% CI NR) p=NR Relative % change in observed users: +418.6% (95% CI NR) p<0.001 for the intervention arm change</p> <p>Physical activity in the location (Senior center): Proportion of senior center users engaging in MVPA: NR</p>

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	<p>Reported Baseline Demographics: NR for either skate park or senior center study Individual level: NR Age: NR Sex: NR Race/ethnicity: NR Education: NR Low income: NR</p> <p>Neighborhood or community level: Census tract data (Table 1) Skate parks</p> <table border="0" style="width: 100%;"> <tr> <td></td> <td style="text-align: center;"><u>Inter</u></td> <td style="text-align: center;"><u>Comp</u></td> </tr> <tr> <td>Population within 1 mile</td> <td style="text-align: center;">31,156</td> <td style="text-align: center;">33,162</td> </tr> <tr> <td>Persons under 18 years</td> <td style="text-align: center;">25.6%</td> <td style="text-align: center;">22.3%</td> </tr> <tr> <td>Persons over age 60</td> <td style="text-align: center;">15.9%</td> <td style="text-align: center;">24.7%</td> </tr> <tr> <td>Race/Ethnicity</td> <td></td> <td></td> </tr> <tr> <td>Hispanic</td> <td style="text-align: center;">32.0%</td> <td style="text-align: center;">21.4%</td> </tr> <tr> <td>White</td> <td style="text-align: center;">53.1%</td> <td style="text-align: center;">61.9%</td> </tr> <tr> <td>African-American</td> <td style="text-align: center;">2.3%</td> <td style="text-align: center;">5.3%</td> </tr> <tr> <td>SES-households in poverty</td> <td style="text-align: center;">11.6%</td> <td style="text-align: center;">8.4%</td> </tr> <tr> <td>Senior Center</td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;"><u>Inter</u></td> <td style="text-align: center;"><u>Comp</u></td> </tr> <tr> <td>Population within 1 mile</td> <td></td> <td></td> </tr> </table>		<u>Inter</u>	<u>Comp</u>	Population within 1 mile	31,156	33,162	Persons under 18 years	25.6%	22.3%	Persons over age 60	15.9%	24.7%	Race/Ethnicity			Hispanic	32.0%	21.4%	White	53.1%	61.9%	African-American	2.3%	5.3%	SES-households in poverty	11.6%	8.4%	Senior Center				<u>Inter</u>	<u>Comp</u>	Population within 1 mile				<p>All parks were observed at four different times on each observation day</p>	<p>Park use (Senior center): Number of senior center users using walking paths adjacent to senior center (already built) Baseline Int (n=NR): 97 Comp (n=NR): 70 follow-up: 3 months after opening Int (n=NR): 28 Comp (n=NR): 36</p> <p>Change in number of walkers: -35 walkers per observation period; 95%CI NR; decrease was greater in the intervention park (p<0.01)</p> <p>Number of senior center users Baseline Int (n=1): 478 Comp (n=1): 765 3-month follow-up after opening Int (n=1): 198 Comp (n=1): 747 Change in number of users: -262 users per 7-day observation period (95% CI NR) p=NR Relative % change in observed users: -56.2% (95% CI NR). The decrease in the intervention arm was significantly larger (p<0.01)</p> <p>Models used: NA</p> <p>Other variables controlled for in study: NR</p> <p>SUMMARY: Two park renovation projects observed different impacts on</p>
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Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
	54,118 46,958 Persons under 18 years 14.3% 15.4% Persons over age 60 18.6% 24.6% Race/Ethnicity Hispanic 5.3% 11.3% White 52.4% 74.5% African-American 7.9% 6.5% SES-households in poverty 10.9% 11.7%			park facility use and measures related to PA. A skate park improvement significantly increased use and increased observed MVPA. A new senior center did not increase use or measures of activity. Programming changes, short (3 months) period of follow up, and new exercise equipment with user fees may have contributed to decrease in use.
<p>Author, year: Cohen et al. 2012</p> <p>Location: USA: Los Angeles, California</p> <p>Design: Before/after with comparison</p> <p>Suitability rating: Greatest</p> <p>Intervention duration: Fitness equipment installed in 2009 (intervention ongoing after installation)</p> <p>Study timeframe (Int to last follow up): Baseline: winter 2008-2009 Two follow-up times—1st follow-up: winter 2009-2010</p>	<p>Setting: County and city parks</p> <p>Geographic scale: Urban (6 parks managed by Los Angeles County and six managed by the City of Los Angeles, and 10 similar control parks)</p> <p>Study population: Los Angeles city and county residents; average population within 1 mile of intervention parks = 40,964</p> <p>Eligibility and Recruitment: Los Angeles is both a County and City. Both City and County parks were included because they offered diversity,</p>	<p>Description: Addition of fitness equipment to parks</p> <p>Infrastructure interventions: Park-based: Yes; fitness zones are easy-to-use outdoor gyms consisting of durable, weather-, and vandal-resistant exercise equipment for strength training and aerobic exercise Greenways/trails: No Playgrounds: No</p> <p>Exposure measurement: Park users (observed and surveyed)</p> <p>Comparison: Parks with no fitness equipment</p>	<p>Description: Physical activity: Yes</p> <p>Park use: Yes</p> <p>Health, mental health, well-being: NR</p> <p>Social outcomes: NR</p> <p>Injury: NR</p> <p>Quality of life: NR</p> <p>Weight related: NR</p> <p>Environmental outcomes: NR</p> <p>Additional/other outcomes: NR</p> <p>Outcome Measurement: PA and park use Instrument: SOPARC Observations in the Fitness Zones hourly for 10 of the 12 hours between 7:30AM and</p>	<p>Total physical activity: Comparison between fitness zone users and non-users (at intervention parks) (Table 3)</p> <p>Propensity score analysis (Table 4) Average number of exercise sessions per week Baseline Int (n=742): 2.36 Comp (n=NR): 2.13 12-month follow-up Int (n=942): 2.5 Comp (n=NR): 2.17 Change in mean difference or proportion: 0.1 (95% CI) p=0.49 Relative % change: +4%</p> <p>Park use: % of New users in the past 6 months Baseline Int (n=742): 7.1% Comp (n=NR): 8.3% 12-month follow-up Int (n=942): 11.4% Comp (n=NR): 6.0%</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
<p>2nd follow-up: spring 2010</p> <p>Year(s) study was implemented: 2008-2010</p> <p>Quality of Execution: Fair Limitation(s): 4</p>	<p>and all added "Fitness Zones."</p> <p>Sample size: Intervention at baseline: Parks: Intervention: 12 (6 county, 6 city parks) Control: 10 Individuals: Observed: 6906 Interviewed: 742</p> <p>Reported Baseline Demographics: Individual level: (Intervention group, observed from all parks) N=6906 Age (range): Children: 20.0% Teens: 11.4% Adults: 56.4% Seniors: 12.2% Sex: Female: 38.6%; Male: 61.4% Race/ethnicity: Latino: 60.5% African American: 15.8% White: 10.8% Asian/Other: 12.9% Education: NR Low income: NR</p> <p>Neighborhood or community level:</p>		<p>7:30PM on the four days (2 weekdays and 2 weekend days), varying the starting and ending times in order to capture a longer duration of park use.</p> <p>Expenditure of METs, average number of exercise sessions/ week</p> <p>Surveys of park users conducted within individuals in Fitness Zone areas after the equipment was installed</p> <p>Park use: New user in the past 6 months, new user in the past 1 month, uses park 1 or more times per week</p>	<p>Change in mean difference or proportion: +6.6 pct pts (95% CI) p=0.014 Relative % change: +88.2%</p> <p>% of new users in the past one month Baseline Int (n=742): 3.6% Comp (n=NR): 5.1% 12-month follow-up Int (n=942): 6.3% Comp (n=NR): 2.6% Change in mean difference or proportion: +5.2 pct pts (95% CI) p=0.007 Relative % change: +124.0%</p> <p>% who use park one or more times per week Baseline Int (n=742): 79.3% Comp (n=NR): 85.3% 12-month follow-up Int (n=942): 81.6% Comp (n=NR): 81.2% Change in mean difference or proportion: +6.4 pct pts (95% CI) p=0.081 Relative % change: +7.7%</p> <p>Models used: Propensity score weighted regressions Difference of differences analysis for the observation data (with control parks)</p> <p>Model 1 (Observation of users) Intercept (comparison parks at baseline): 919.1 (SE 174) p=0.0001</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
	Intervention park characteristics Population (within 1-mile): 40,964 Race/ethnicity % Hispanic: 59% % African American: 18.9% SES : % poverty: 29.3%			<p>Fitness Zone parks at baseline: -305.3 (SE 247) p=0.23 Change in users in comparison parks: -14.3 (SE 141) p=0.92 Change in users in Fitness Zone parks: 207.3 (SE 199) p=0.31</p> <p>Model 2 (Expenditure of METS) Intercept (comparison parks at baseline) 2,191 (SE 425) p=0.0001</p> <p>Fitness Zone baseline: -687 (SE 601) p=0.27 Change in METS for the comparison parks: -100 (SE 350) p=0.78 Change in METS at Fitness Zone parks: 685 (SE 496) p=0.18</p> <p>Other variables controlled for in study: Propensity score model: age, gender, Latino ethnicity, BMI, self-reported health status, and whether they exercised at work</p> <p>SUMMARY: Compared to non-fitness equipment parks, more fitness equipment park users were new users in the last one and six months and reported using the park one or more times per week.</p> <p>Difference-in-difference analysis comparing intervention and control parks found that at the first follow-up an average of 207 additional individuals used an intervention park, and the average estimated energy expenditure increased by 685 METs,</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
<p>Author, year: Cohen et al. 2014</p> <p>Location: USA: Los Angeles, California</p> <p>Design: Before/fter without a comparison (for household surveys)</p> <p>Post-only with a comparison (for observations)</p> <p>Suitability rating: Least</p> <p>Intervention duration: Unclear when pocket parks were constructed or how long it took for parks to be completed, but intervention was ongoing after completion</p> <p>Study timeframe (Int to last follow up): Baseline: July-Aug 2006 Follow up: July-Aug 2008. Follow up for comparison parks: 2008-2009</p>	<p>Setting: Neighborhood parks</p> <p>Geographic scale: Urban (½ mile surrounding 3 pocket parks and 15 neighborhood (comparison) parks)</p> <p>Study population: Residents within ½ mile of parks</p> <p>Eligibility and Recruitment: Pocket park neighborhoods defined as being within ½ mile radius. Comparison park neighborhoods within 1-mile radius. Control parks were a sample of playgrounds in larger neighborhood parks that were matched to each of the pocket parks by the percentage of households in poverty.</p> <p>Sample size: Intervention parks: 3 Control: 15</p> <p>Reported Baseline Demographics:</p>	<p>Description: Three pocket parks installed in neighborhood</p> <p>Infrastructure interventions: Park-based: Three pocket parks were developed, two in previously vacant lots and the third in a former community garden site. All three pocket parks had playground equipment and benches installed, and a walking path was developed around the perimeter of the Beverly, the largest park. All were fenced and enclosed by gates that could be locked. Greenways/trails: No Playgrounds: No</p> <p>Exposure measurement: Residents near surrounding parks considered exposed</p> <p>Comparison: Neighborhood parks that were matched to each of the pocket parks by the percentage of households in poverty</p>	<p>Description: Physical activity: Yes, estimated METS during observation; number observed engaging in MVPA</p> <p>Park use: Yes, total number observed (in park)</p> <p>Health, mental health, well-being: NR</p> <p>Social outcomes: NR</p> <p>Injury: NR</p> <p>Quality of life: NR</p> <p>Weight related: NR</p> <p>Environmental outcomes: No</p> <p>Other: Yes, perceptions of safety, self-reported park use and health outcomes (BMI).</p> <p>Outcome Measurement: Instrument: SOPARC and household surveys</p> <p>Trained community health workers (CHWs) observed all areas of the pocket parks and comparison playground areas four times a day during each of the seven days of the week at baseline and at follow-up.</p>	<p>with neither increase being statistically significant.</p> <p>Physical activity in the location: Results below from Table 2: Estimated METS during observation time (average of 3 intervention parks compared to average of all control parks)</p> <p>Baseline Int (n=NR): NR Comp (n=NR): NR Duration of follow-up unclear (ongoing) Int (n=3): 324 Comp (n=15): 374 Change in mean difference or proportion: -50 METs (95% CI) p=NR Relative % change: -13.4% (post-only)</p> <p>Number observed engaging in MVPA Baseline Int (n=NR): NR Comp (n=NR): NR Duration of follow-up unclear (ongoing) Int (n=3): 36 Comp (n=15): 48 Change in mean difference or proportion: -12 persons (95% CI) p=NR Relative % change: -25% (post-only)</p> <p>Other measures of PA: Self-reported from household surveys (pocket parks only – before/after, no control design, reported in Table 3) Engage in leisure time exercise Baseline Int (n=392): 25.8% Duration of follow-up unclear (ongoing)</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
<p>Year(s) study implemented: Mid-July to mid-August 2006-2009</p> <p>Quality of Execution: Fair</p> <p>Limitation(s): 2</p>	<p>Household surveys Intervention: 329 Follow-up for comparison: 342</p> <p>Park users Intervention: 71 Comparison: 992</p> <p>Individual level: Intervention (Household survey) Age (mean) : 39 yrs Sex: Female: 71.9%; Male: 28.1% Race/ethnicity: Latino: 94.2% Black: 4.6% White: 3% Asian: 1% Other: 1% Education: NR Low income: NR</p> <p>Individual level: (Intervention park users) Age (mean: 35 yrs Sex: Female: 84.5%; Male: 15.5% Race/ethnicity: Latino: 98.6% Black: 0% White: 0% Asian: 0% Other: 1% Education: NR Low income: NR</p>		<p>The four daily observation start times were divided into early morning, late morning to noon, afternoon, and evening with different hours observed in each of the four time periods on different days to cover all the hours.</p>	<p>Int (n=432): 35.7% Change in mean difference or proportion: +9.9 pct pts (95% CI) p=0.0025</p> <p>Exercise in park Baseline Int (n=392): 9.6% Duration of follow-up unclear (ongoing) Int (n=432): 14.4% Change in mean difference or proportion: +4.8 pct pts (95% CI) p=0.0395</p> <p>Half or more of leisure time exercise is vigorous Baseline Int (n=392): 71.7% Duration of follow-up unclear (ongoing) Int (n=432): 71.1% Change in mean difference or proportion: -0.6 pct pts (95% CI) p=NS</p> <p>Park use: Results below from Table 2 (average of 3 intervention parks compared to average of all control parks) Average total number observed (across parks) Total # park users/week. Baseline Int (n=3): NR Comp (n=15): NR Duration of follow-up unclear (ongoing) Int (n=3): 147 Comp (n=15): 134 Change in mean difference or proportion: +13 (95% CI) p=NR</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
	<p>Neighborhood or community level: Number of individuals living within ½ mile of these parks varied substantially, with Marson Park at 10,726 people; Broadway Park at 18,644; and Beverly Park at 31,320. Race/ethnicity: The census tracts around the sites had high rates of household poverty and substantial minority populations Latino range: 70%–80%; African American range: 3%–17%; Asian 0%–16%) SES (i.e., poverty): The census tracts around the sites had high rates of household poverty (range 30%–41%)</p>			<p>Relative % change: +9.7%</p> <p>Total number of observed at intervention (results in text of paper) Baseline Int (n=3): 3 Comp (n=15): NR Duration of follow-up unclear (ongoing) Int (n=3): 446 Comp (n=15): NR Change in mean difference or proportion: +443 (95% CI) p=NR</p> <p>Authors also report results for each intervention park and its matched comparisons separately (see Table 2)</p> <p>Self-reported park use from household surveys (pocket parks only – before/after, no control design, reported in Table 3) Adults visit any park ≥ once per week Baseline Int (n=392): 11.1% Duration of follow-up unclear (ongoing) Int (n=432): 33.9% Change in mean difference or proportion: 22.8% (95% CI) p<0.0001 Relative % change: 205.4%</p> <p>Use of other parks ≥ once a week Baseline Int (n=392): 10.8% Duration of follow-up unclear (ongoing) Int (n=432): 21.8% Change in mean difference or proportion: 11.0% (95% CI) p<0.0001</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

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				<p>Factors associated with pocket park use (compared to neighborhood parks) Table 6</p> <table border="1"> <thead> <tr> <th></th> <th>GEE Estimate*</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>Change**</td> <td></td> <td></td> </tr> <tr> <td>Intercept</td> <td>8.82 (SE 4.13)</td> <td></td> </tr> <tr> <td>p<0.05</td> <td></td> <td></td> </tr> <tr> <td>Weekend</td> <td>0.56 (SE 0.14)</td> <td>75.9 (23.9) p<0.001</td> </tr> <tr> <td>Poverty^</td> <td>-0.22 (SE 0.15)</td> <td>-19.6 (11.8) NS</td> </tr> <tr> <td>Population#</td> <td>0.36 (SE 0.08)</td> <td>43.2 (10.9) p<0.001</td> </tr> <tr> <td>Comparison</td> <td>-1.21 (SE 0.28)</td> <td>-70.3 (8.3) p<0.001</td> </tr> </tbody> </table> <p>*Log Scale **Relative effect translated to percentage change ^Proportion of household in poverty (change of 0.01 or 1%) # Population 10,000 people GEE: Generalized estimating equation</p> <p>Pocket Park and Neighborhood Park User Survey Responses (See table for all variables) Table 5</p> <table border="1"> <thead> <tr> <th></th> <th>Int</th> <th>Cont</th> <th>p</th> </tr> </thead> <tbody> <tr> <td>Park is safe or very safe</td> <td>95.7%</td> <td>82.8%</td> <td><0.005</td> </tr> <tr> <td>Visits park >once per week</td> <td>91.6%</td> <td>85.3%</td> <td>0.14</td> </tr> <tr> <td>Walks to the park</td> <td>81.2%</td> <td>52.2%</td> <td><0.0001</td> </tr> <tr> <td>Engage in leisure time exercise</td> <td>36.6%</td> <td>60.8%</td> <td><0.0001</td> </tr> <tr> <td>Exercise in park</td> <td>60.5%</td> <td>65.2%</td> <td>0.56</td> </tr> <tr> <td>Leisure time exercise is vigorous</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		GEE Estimate*	%	Change**			Intercept	8.82 (SE 4.13)		p<0.05			Weekend	0.56 (SE 0.14)	75.9 (23.9) p<0.001	Poverty^	-0.22 (SE 0.15)	-19.6 (11.8) NS	Population#	0.36 (SE 0.08)	43.2 (10.9) p<0.001	Comparison	-1.21 (SE 0.28)	-70.3 (8.3) p<0.001		Int	Cont	p	Park is safe or very safe	95.7%	82.8%	<0.005	Visits park >once per week	91.6%	85.3%	0.14	Walks to the park	81.2%	52.2%	<0.0001	Engage in leisure time exercise	36.6%	60.8%	<0.0001	Exercise in park	60.5%	65.2%	0.56	Leisure time exercise is vigorous			
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Park, Trail, Greenway				
				<p>≥50% of the time 88.9% 63.2% <0.01</p> <p>Average BMI 26.2 26.2 0.96</p> <p>Report good to excellent health 92.9% 84.5% <0.06</p> <p>The local population density had a significant relationship with park use. An additional local population of 10,000 people is associated with 43% more users.</p> <p>Models used: GEE Estimate</p> <p>Other variables controlled for in study: weekend dates, proportion of households in poverty, and total population density within 1 mile of the park.</p> <p>SUMMARY: Model: Comparison park playground areas had 70% fewer users than did the pocket parks on a daily basis. For all parks there were about 75% more users on a weekend day than on a weekday.</p> <p>Household surveys: Residents reported visiting any park once a week or more, engaging in leisure time PA, exercising in parks, and visiting other parks once a week or more after park installation.</p> <p>Evidence comparing pocket park users to other neighborhood park users showed more pocket park users reported the park as safe or very safe,</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
				walked to the park, and engaged in leisure time exercise that consisted of vigorous activity at least half of the time or more. However, more neighborhood park users reported engaging in leisure time exercise than pocket park users.
<p>Author, year: Dobbinson et al. 2020</p> <p>Location: Melbourne, Australia</p> <p>Design: Other design with concurrent comparison</p> <p>Suitability rating: Greatest</p> <p>Intervention duration: Sustained, but outcomes assessed at 1 year and 2 year post intervention</p> <p>Study timeframe (Int to last follow up): 2 years</p> <p>Year(s) study was implemented: 2013-2016</p> <p>Quality of Execution: Fair Limitation(s): 3</p>	<p>Setting: Parks and park amenities</p> <p>Geographic scale: Suburban (local government area for a suburb of a city)</p> <p>Study population: Study parks and park users during observation periods</p> <p>Eligibility and Recruitment: Intervention parks were assessed as having inadequate facilities and shade and prescheduled to receive refurbishments. Comparison parks were selected for similar characteristics and neighborhoods. Recruited park users provided intercept surveys.</p> <p>Sample size: Baseline number of visitors</p>	<p>Description: ShadePlus park infrastructure improvement project implemented in a local government area for a lower socioeconomic community</p> <p>Infrastructure interventions: Park-based: Improvements included rubber fall zones, additional slide, a cubby or club house, seating, picnic tables Greenways/trails: Paths were part of park renovation Playgrounds. Renovated within parks Urban greening: Trees were planted as part of park renovations Other: Shade sails</p> <p>Exposure measurement: Park users and use of shade</p> <p>Comparison: Comparison parks were selected based on similar characteristics to intervention parks, but did not receive renovations during study period</p>	<p>Description: Physical activity: Yes Park use: Yes (counts) Health, mental health, well-being: Yes Social outcomes: Yes Injury: NR Quality of life: NR Weight related: NR Environmental outcomes: NR Additional/other outcomes: Percentage of park users using shade, perceived community engagement, perceived aesthetics of park amenities</p> <p>Outcome Measurement: Instrument: Each park had 11 30-minute observations of the playground and rest of park for each observation day (for 8 selected days for each time period, time 1 to time 3, T1-T3)</p>	<p>Physical activity in the location: Study results are reported as study arm change over observation periods (T1-T3). Complete raw data NR.</p> <p>Observed number of park users engaged in MVPA Baseline (T1) Int (n=3 parks): 244, proportion 87.3% Comp (n=3 parks): 210, proportion 76.8% 24-month post intervention follow-up Int (n=3 parks): NR. Proportion NR Comp (n=3 parks): NR, proportion NR</p> <p>Mean change in park users engaged in MVPA Intervention T1-T3: +59.3 (SD 118.0) Comparison T1-T3: +43.3 (SD 13.7) Difference and t-test: +16.0 p=0.83 Cohen’s d effect estimate: 1.2 (95%CI -12.8, 15.1)</p> <p>Park use: Observed number of park users Baseline (T1) Int (n=3 parks): 846 Comp (n=3 parks): 824 24-month post intervention follow-up Int (n=3 parks): NR Comp (n=3 parks): NR</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
	<p>Intervention: 846 Comparison: 824</p> <p>Reported Baseline Demographics: (Total sample): n=1670 observed park users Individual level: Age-categories Child <14 yrs: 33.2% Adolescents 14-19 yrs: 14.2% Adult 20-49 yrs: 35.4% Adult 50+ yrs: 17.2% Sex: Female: 41.0%; Male: 58.3%; undetermined sex: 0.7% Race/ethnicity: NR Education: NR Low income: NR</p> <p>Neighborhood or community level: (Suburbs for study parks) Population: Suburb population for each park ranged from 8,313 to 35,091 Age: Suburb median age ranged from 34 to 43 yrs. Race/ethnicity: NR SES: Proportion of residents in park</p>		<p>Observed MVPA among park users during observation periods</p> <p>Counts of park users during observation periods</p> <p>Intercept interviews of park users on self-reported emotional state, social engagement, and perceptions of social interactions and park amenities</p> <p>Self-reported emotional state based on Positive and Negative Affect Schedule (PANAS) scale</p>	<p>Mean change in park users Intervention T1-T3: +123.0 (SD 138.8) Comparison T1-T3: +29.7 (SD 21.5) Difference and t-test: +93.3 p=0.31 Cohen's d effect estimate: 4.3 (95%CI -6.1, 14.8) Relative % change: +314.1%</p> <p>Observed number of park users using shade Baseline (T1) Int (n=2 parks): 12 Comp (n=3 parks): 30 24-month post intervention follow-up Int (n=2 parks): NR Comp (n=3 parks): NR</p> <p>Mean change in park users using shade Intervention T1-T3: +44.7 (SD 77.0) Comparison T1-T3: -15.3 (SD 32.8) Difference and t-test: +60.0 p=0.28 Cohen's d effect estimate: 1.8 (95%CI -2.3, 5.9)</p> <p>Models used: NR but t-tests for T1-T2 and T1-T3</p> <p>Other variables controlled for in study: NR</p> <p>SUMMARY: Park-based improvements in lower SES suburbs of Melbourne were associated with small improvements in measures of park use, park observed MVPA, shade use, and self-assessed social interactions, but differences were not statistically significant at 24 months after</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
	catchment area with weekly income below city median (AU≤\$599) Range: 35%-51% Other: Park sizes ranged from 5650 meters ² to 28,645 meters ²			renovation. Changes were variable by study park. Baseline rates of park users engaged in MVPA were high.
<p>Author, year: Peschardt et al. 2014</p> <p>Location: Denmark, Copenhagen</p> <p>Design: Before/after without a comparison</p> <p>Suitability rating: Least</p> <p>Intervention duration: 2010-2011</p> <p>Study timeframe (Int to last follow up): April 2010-Summer 2012</p> <p>Year(s) study was implemented: 2010-2012</p> <p>Quality of Execution: Fair Limitation(s): 4</p>	<p>Setting: Pocket Park in the city</p> <p>Geographic scale: Urban (1 pocket park)</p> <p>Study population: Park users; individuals working or living near the park</p> <p>Eligibility and Recruitment: Convenience sampling of park users</p> <p>Sample size: Convenience sample of 48 for questionnaire at baseline 45 for the post intervention questionnaire Post-only interviews n=6 (of 45 participants)</p> <p>Reported Baseline Demographics: (Intervention group) Individual level:</p>	<p>Description: Permanent pocket park redesign in a dense city area</p> <p>Intervention components: Park-based: Parking spaces integrated into area, places to sit, major and minor paths, flower beds, and paving stone lights Greenways/trails: Redesign of the walking paths in the pocket park Playgrounds: No</p> <p>Exposure measurement: Individuals in, or walking through, park</p> <p>Comparison: NA</p>	<p>Description: Physical activity: NR Park use – frequency of park use; reason for park use Health, mental health, well-being: NR Social outcomes: NR Injury: NR Quality of life: NR Weight related (BMI): NR Other: NR</p> <p>Outcome Measurement: Instrument: Surveys and semi-structured interviews Survey questionnaires were handed out at both time periods to people using the area for a longer or shorter stay, which means that people who were just walking past the area were not included.</p>	<p>Park use Reason for visit – Socializing Baseline Int (n=48): 8% 6 months or more follow-up Int (n=45): 4% Change in mean difference or proportion: -4 pct pts (95% CI) p=NR</p> <p>Reason for visit - Passage Baseline Int (n=48): 31% 6 months or more follow-up Int (n=45): 18% Change in mean difference or proportion: -13 pct pts (95% CI) p=NR</p> <p>Reason for visit – Walking the dog Baseline Int (n=48): 4% 6 months or more follow-up Int (n=45): 0 Change in mean difference or proportion: -4 pct pts (95% CI) p=NR</p> <p>Reason for visit – Rest and restitution Baseline Int (n=48): 35% 6 months or more follow-up Int (n=45): 40%</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
	<p>Age (range): 15-29 – 13% 30-49 – 40% 50-65 – 35% 66-100 – 10% Sex: Female: 48%; Male: 52% Race/ethnicity: NR Nationality: Danish – 88% Education: <10 years – 21% 10-15 years – 48% >15 years – 35% Low income: NR</p> <p>Neighborhood or community level: NR</p>		<p>Collected in the mornings, middays, evenings and in weekends in the summer.</p>	<p>Change in mean difference or proportion: +5 pct pts (95% CI) p=NR</p> <p>Reason for visit – Other Baseline Int (n=48): 25% 6 months or more follow-up Int (n=45): 40% Change in mean difference or proportion: +15 pct pts (95% CI) p=NR</p> <p>How often do you come here – several times a week Baseline Int (n=48): 19% 6 months or more follow-up Int (n=45): 22% Change in mean difference or proportion: +3 pct pts (95% CI) p=NR Relative % change: +15.7%</p> <p>How often do you come here – once a week Baseline Int (n=48): 8% 6 months or more follow-up Int (n=45): 2% Change in mean difference or proportion: -6 pct pts (95% CI) p=NR Relative % change: -75% Combined weekly use of park participants (Relative % change: -29.6)</p> <p>How often do you come here – several times a month Baseline Int (n=48): 4%</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
				<p>6 months or more follow-up Int (n=45): 11% Change in mean difference or proportion: +7 pct pts (95% CI) p=NR Relative % change: +175%</p> <p>How often do you come here – once a month Baseline Int (n=48): 4% 6 months or more follow-up Int (n=45): 9% Change in mean difference or proportion: +5 pct pts (95% CI) p=NR Relative % change: +125%</p> <p>How often do you come here – rarer Baseline Int (n=48): 27% 6 months or more follow-up Int (n=45): 20% Change in mean difference or proportion: -7 pct pts (95% CI) p=NR</p> <p>How often do you come here – First time Baseline Int (n=48): 38% 6 months or more? follow-up Int (n=45): 36% Change in mean difference or proportion: -2 pct pts (95% CI) p=NR Relative % change: -5.3%</p> <p>Models used: NA</p> <p>Other variables controlled for in study: NR</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
				<p>SUMMARY: At the follow-up, more individuals surveyed reported using the park for rest and “other” reasons; the percentage of individuals passing through, socializing, or walking the dog decreased. The number of individuals who reported visiting the park several times a week, several times a month, or once a month increased. The number of individuals who reported visiting for the first time, rarely, or once a week decreased.</p>
<p>Author, year: Quigg et al. 2011</p> <p>Location: Dunedin City, New Zealand</p> <p>Design: Before/after with comparison</p> <p>Suitability rating: Greatest</p> <p>Intervention duration: Unclear how long for it took for renovation, possibly 9 months (completed 3 months before post measures)</p> <p>Study timeframe (Int to last follow up): 3 months</p>	<p>Setting: City public park playgrounds</p> <p>Geographic scale: Urban in 2 communities</p> <p>Study population: Community children (attending local elementary schools) (5–10 years at baseline)</p> <p>Eligibility and Recruitment: City Council playground upgrade program identified the intervention community. Two playgrounds were selected for upgrading from the six playgrounds in the intervention</p>	<p>Description: Park playground renovation</p> <p>Infrastructure interventions Park-based: No Greenway/trails: No Playgrounds: 10 new components, including play equipment, seating, additional safety surfacing, and waste facilities were installed, and two existing components were removed. At the other playground, two new play equipment pieces were installed, and a small modification was made to another piece of equipment.</p> <p>Exposure measurement: Did not report exposure to playground.</p> <p>Comparison: Community with no playground renovation</p>	<p>Description: Physical activity – Yes; total daily PA Park use: NR Health, mental health, well-being: NR Social outcomes: NR Injury: NR Quality of life: NR Weight related (BMI): NR Other: NR</p> <p>Outcome Measurement: Physical activity Instrument: Accelerometer for children’s today daily PA The unit of analysis was the child’s day.</p>	<p>Total physical activity: Daily PA – Raw scores not reported</p> <p>Multivariate model ratio of geometric means Exposure to playground intervention (community of residence) compared to control (when BMI z-score is 0) OR: 1.11 (CI 0.85, 1.44) p=0.456</p> <p>Based on the final model, there was no evidence that participants in the intervention community had a statistically significant difference in their mean total daily physical activity compared to those living in the control community.</p> <p>See Table 2 for additional analysis (significant findings between PA and participant baseline age, school day, usual mode of travel to school, sex, and ethnicity)</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
<p>Year(s) study was implemented: October 2007-December 2008</p> <p>Quality of Execution: Fair Limitation(s): 3</p>	<p>community. For control, six communities were considered; community was picked based on similarity to the intervention community.</p> <p>Sample size: Baseline: n=184 Follow-up: n=156 (85% retention)</p> <p>Reported Baseline Demographics: (Intervention and control group combined) Individual level: Age (mean): 7.6 yrs Sex: Female: 54%; Male: 46% (the groups were different in terms in sex – control group more than 50% female, intervention group less than 50% female) Race/ethnicity: (not mutually exclusive categories) NZ Maori: 21% Pacific: 6% NZ European/Other: 78% Missing: 8% BMI: Mean Z-score = 0.97 (0.84)</p>		<p>Participant wore device over 8 days. Daily totals were retained within school hours because the contribution of school environments to daily PA totals was important.</p> <p>Parent survey questionnaire was mailed to participants' homes at the beginning of each PA assessment phase.</p>	<p>Models used: Linear mixed model predicting PA controlling for baseline PA (multivariate model ratios reported)</p> <p>Other variables controlled for in study: NR</p> <p>SUMMARY: The final model without the BMI–community interaction found no evidence that participants in the intervention community had a statistically significant difference in their mean TDPA, compared to those living in the control community.</p> <p>For children in the intervention community, compared to the control community, total activity increased for those with BMI z-scores less than 0.4 and decreased for those with BMI z-scores greater than 0.4.</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
	Normal weight: 54% Overweight: 32% Obese: 14% Education: NR Low income: NR Neighborhood or community level: NR			
<p>Author, year: Roemmich et al. 2014 (Study 1)</p> <p>Location: USA: Grand Forks, North Dakota</p> <p>Design: Before/after without a comparison. Three observation points: baseline, post-intervention, post-intervention (but with intervention removed)</p> <p>Suitability rating: Least</p> <p>Intervention duration: Brief (removal of seating, and then returned for another observation period)</p> <p>Study timeframe (Int to last follow up): Study 1 in 2012: Baseline: mid-July Post intervention: early August</p>	<p>Setting: Park playground within a 17.5-acre park of mature trees, gardens, walking paths, and sport fields and courts</p> <p>Geographic scale: Suburban (1 playground)</p> <p>Study population: Park users (children and parents/ caretakers)</p> <p>Eligibility and Recruitment: Eligibility/Recruitment: Adult and child park users Teenagers (age 13–18 y) were omitted from the analyses because some took on the role of the child while others acted as a caregiver.</p> <p>Sample size: Study 1 Baseline:</p>	<p>Description: Removal of seating near playground area (micro-environment infrastructure change at picnic area) with kiddie and regular swings, monkey bars, a tunnel, bridge, and multiple slides</p> <p>Infrastructure interventions: Park-based: Removed seating near playground. For both study 1 and study 2, playground seating was removed for observation B and then returned to its original placement in observation A2. (see study 2 in the row below) Greenway and trails: No Playgrounds: No, but modifications around playground</p> <p>Exposure measurement: Park users in the playground area</p> <p>Comparison: NA</p>	<p>Description: Physical activity: Yes; METs Park use: No Health, mental health, well-being: NR Social outcomes: NR Injury: NR Quality of life: NR Weight related (BMI): NR Other: NR</p> <p>Outcome Measurement: Instrument: SOPARC A single systematic observation of each target area took place for 5 weekdays and 2 weekend days for each of the 3 study conditions. 7 days of observations were taken during baseline (A1, mid-July) with seating close to the playground, then with the picnic tables removed</p>	<p>Physical activity in the location: Study 1: Activity intensity (in METs) for adults Baseline Int (n=79): 1.8 (SE 0.1) ≈1-month follow-up Int (n=22): 2.0 (SE 0.2) ≈1-month return to baseline conditions Int (n=55): 1.4 (SE 0.1) Change between baseline and intervention: +0.2 Relative % change: 11% Change between intervention and return to baseline: -0.6</p> <p>Study 1: Activity intensity (in METs) for children Baseline Int (n=91): 3.1 (SE 0.2) ≈1-month follow-up Int (n=27): 3.8 (SE 0.4) ≈1-month return to baseline conditions Int (n=57): 3.1 (SE 0.3) Change between baseline and intervention: +0.7 Relative % change: +23% Change between intervention and return to baseline: 0</p> <p>Odds of adults standing rather than sitting were 9.4 (95% CI 2.5 to 35.2, p</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
<p>Return to baseline: late August ≈1 month</p> <p>Year(s) study was implemented: 2012-2013</p> <p>Quality of Execution: Fair Limitation(s): 3</p>	<p>Adults n=79 Children n=91</p> <p>Reported Baseline Demographics: Individual level: NR Age: NR Sex: NR Race/ethnicity: NR Education: NR Low income: NR</p> <p>Neighborhood or community level: NR</p>		<p>(B, early August), and then with seating returned to the baseline placement (A2, late August). The picnic tables were repositioned to standard locations each day of the A conditions</p> <p>Activity level classifications were converted to MET intensities (sitting = 1.25 METs; standing = 1.5 METs; moderate = 3.0 METs; vigorous = 6.0 METs).</p>	<p>b 0.001) greater during condition B than during A1 and 4.7 (95% CI 1.3 to 17.2, p<0.02) greater during B than during A2.</p> <p>Odds of adults being in MVPA rather than sitting were 4.1 (95% CI 1.1 to 15.1, p b 0.03) greater during condition B than during A1 and 22.7 (95% CI 4.2 to 122.0, p b 0.001) greater during B than during A2.</p> <p>MET intensities were greater (p<0.02) when seating was not accessible (condition B) than when seating was near (conditions A1, A2).</p> <p>Odds of children standing or being in MVPA rather than sitting were not associated (p ≥ 0.45) with condition</p> <p>Additional analysis including children only demonstrated a 23% increase (p ≥ 0.08) in activity intensity during condition B.</p> <p>Models used: Log-linear models</p> <p>Other variables controlled for in study: NR</p> <p>SUMMARY: Study 1 demonstrated that the activity intensity (in METs) of children and adults increased when seating was removed from the playground area. When seating was replaced in condition A2, activity intensity went back down.</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
<p>Author, year: Roemmich et al. 2014 (Study 2)</p> <p>Location: USA: Grand Forks, North Dakota</p> <p>Design: Before/after without a comparison. Three observation points: baseline, post-intervention, post-intervention (but with intervention removed)</p> <p>Suitability rating: Least</p> <p>Intervention duration: Brief (removal of seating, and then returned for another observation period)</p> <p>Study 2 in 2013: Baseline: late June Post-intervention: mid-July Return to baseline: late July to early August ≈1 month</p> <p>Year(s) study was implemented: 2012-2013</p> <p>Quality of Execution: Fair</p>	<p>Setting: Park playground within a 17.5-acre park of mature trees, gardens, walking paths, and sport fields and courts; a splash playground located adjacent to the playground was included in the 2-hour observations</p> <p>Geographic scale: Suburban (1 playground)</p> <p>Study population: Park users (children and parents/caretakers)</p> <p>Eligibility and Recruitment: Adult and child park users; additional observation time for families. Teenagers (age 13–18 y) were omitted from the analyses.</p> <p>Sample size: Study 2 Baseline: Adults n=130 Children n=115</p> <p>Reported Baseline Demographics: Individual level: NR Age : NR</p>	<p>Description: Removal of seating near playground area (micro-environment infrastructure change at picnic area) with kiddie and regular swings, monkey bars, a tunnel, bridge, and multiple slides</p> <p>Infrastructure interventions: Park-based: Removed seating near playground. For both study 1 and study 2, playground seating was removed for observation B and then returned to its original placement in observation A2. Greenway and trails: No Playgrounds: No, but modification around playground</p> <p>Exposure measurement: Park users in the playground area</p> <p>Comparison: NA</p>	<p>Description: Physical activity: Yes, METs Park use: No Health, mental health, well-being: NR Social outcomes: NR Injury: NR Quality of life: NR Weight related (BMI): NR Other: Yes, time stayed at the park by families</p> <p>Outcome Measurement: Instrument: SOPARC A single systematic observation of each target area took place at 5:30 pm for 5 weekdays and 2 weekend days for each of the 3 study conditions. Study 2 also included a two-hour observation period during which the activity intensity of adults and the children that they brought to the playground (i.e., family) was measured every 15 minutes. 7 days of observations were taken during baseline (A1, mid-July) with seating close to the playground, then</p>	<p>Physical activity in the location: Study 2: Activity intensity (in METs) for adults Baseline Int (n=130): 1.7 (SE 0.1) ≈1-month follow-up Int (n=48): 2.3 (SE 0.2) ≈1-month return to baseline conditions Int (n=49): 1.6 (SE 0.1) Change between baseline and intervention: 0.6 Relative % change: +35% Change between intervention and return to baseline: -0.7</p> <p>Study 2: Activity intensity (in METs) for children Baseline Int (n=115): 3.2 (SE 0.2) ≈1-month follow-up Int (n=69): 3.6 (SE 0.2) ≈1-month return to baseline conditions Int (n=73): 3.4 (SE 0.2) Change between baseline and intervention: 0.4 Relative % change: +13% Change between intervention and return to baseline: -0.2</p> <p>Study 2: Activity intensity (in METs) for families Baseline Int (n=NR): 2.24 (SE 0.07) ≈1-month follow-up Int (n=NR): 2.62 (SE 0.08) ≈1-month return to baseline conditions Int (n=NR): 2.43 (SE 0.09) Change between baseline and intervention: 0.38</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
Limitation(s): 3	Sex: Female: %; Male: % NR Race/ethnicity: NR Education: NR Low income: NR Neighborhood or community level: NR		with the picnic tables removed (B, early August), and then with seating returned to the baseline placement (A2, late August). The picnic tables were repositioned to standard locations each day of the A conditions. Activity level classifications were converted to MET intensities (sitting = 1.25 METs; standing = 1.5 METs; moderate = 3.0 METs; vigorous = 6.0 METs).	Relative % change: 17% Change between intervention and return to baseline: -0.19 The odds of adults being in MVPA rather than sitting were 4.5 (95% CI 2.1 to 9.8, p b 0.001) greater during condition B than during A1 and 4.3 (95% CI 1.6 to 11.4, p b 0.004) greater during B than during A2 The odds of children standing or being in MVPA rather than sitting were not associated (p ≥0.35) with condition Other outcomes Study 2: Time stayed at park (min) by families Baseline Int (n=NR): 56.78 (SE 3.89) ≈1-month follow-up Int (n=NR): 51.70 (SE 3.2) ≈1-month return to baseline conditions Int (n=NR): 48.27 (SE 3.68) Change between baseline and intervention: -5.08 Change between intervention and return to baseline: -3.43 The odds of adults standing versus sitting during condition B were not different (OR 0.9 95% CI 0.3 to 3.0, p ≥ 0.90) than those during A1 or A2 Two-hour observation periods: Adult activity intensity did not predict (p ≥ 0.46) the activity intensity of the children that they brought to the playground.

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
				<p>Children were more intensely active in families who brought a greater number of children (b= 0.23, p = 0.04).</p> <p>Models used: Log-linear models</p> <p>Other variables controlled for in study: NR</p> <p>SUMMARY: Study 2 found similar results to Study 1 with intensity increasing with the removal of seating and then decreasing when the seating was returned.</p> <p>The observation of families in Study 2 found the same pattern but did not find an association between child and parent PA or the presence of seating and the time families spent at the playground. Study 2 showed children engaged in more activity when there were more children at the playground.</p>
<p>Author, year: Sami et al. 2018</p> <p>Location: USA: Garden Grove, California</p> <p>Design: Before/after without a comparison</p> <p>Suitability rating: Least</p> <p>Intervention duration: 2-3 months</p>	<p>Setting: Community with open green space, a children’s playground, a community pool, a meeting facility, and a covered picnic area located in a designated park area (4.5-acre park)</p> <p>Geographic scale: Suburban area one neighborhood park</p>	<p>Description: Addition of fitness zone in a park (outdoor fitness equipment installed)</p> <p>Infrastructure interventions: Park-based: Outdoor gym 5 target areas, one of which, target area 3, encompassed the fitness zone, which consisted of 8 pieces of newly installed fitness equipment Greenways/trails: No Playgrounds: No</p> <p>Exposure Measurement:</p>	<p>Description: Physical activity: Yes Park use: NR Health, mental health, well-being: NR Social outcomes: NR Injury: NR Quality of life: NR Weight related (BMI): NR</p>	<p>Physical activity in the location: Distribution of activity levels in park at preintervention and postintervention (Figure 3) % of person-periods Estimated from graph in Figure 3</p> <p>Overall (Park overall) Walking Baseline Int (n=NR): 15% 2/3-month follow-up Int (n=NR): 63% Net difference: +48 pct pts Vigorous</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
<p>Study timeframe (Int to last follow up): 2-3 months (December 2015 to February 2016)</p> <p>Year(s) study was implemented: 2015-2016</p> <p>Quality of Execution: Fair Limitation(s): 4</p>	<p>Study population: Users of Eastgate park</p> <p>Eligibility and Recruitment: Had to use 1 of 5 target areas in the park</p> <p>Sample size: Baseline: n=1650 person-period Follow up: n=1776-person period</p> <p>Reported Baseline Demographics: Individual Level (Int group): Age (mean): Child 30.1% Teen 12.4% Adult 43.9% Senior 13.6% Sex: Female: 50.9%; Male: 49.1% Race/ethnicity: % White 59.6 % Hispanic 12.2 % Black 2.2 % Other 25.9 Education: NR Low income: NR</p> <p>Neighborhood or community level: NR</p> <p>Note: there was a significant difference in demographic</p>	<p>Aerial mapping with 5 target intervention zones in park</p> <p>Comparison: NA</p>	<p>Environmental outcomes: NR</p> <p>Additional/other outcomes: Yes, sedentary behavior (see Appendix A)</p> <p>Outcome Measurement Instrument: SOPARC Unit of measure is average MET scores 1) categorized each user’s (person-period) activity level during the period (sedentary, walking, vigorous) 2) converted activity levels to numeric metabolic equivalent task (MET) scores and calculated the period-average score across users (sedentary is equal to 1.5 METs, walking is equal to 3.0 METs, and vigorous is equal to 6.0 METs)</p>	<p>Baseline Int (n=NR): 38% 2/3-month follow-up Int (n=NR): 21% Net difference: -17 pct pts</p> <p>Target zone 3 (fitness area) Walking Baseline Int (n=NR): 65% 2/3-month follow-up Int (n=NR): 47% Net difference: -18 pct pts Vigorous Baseline Int (n=NR): 20% 2/3-month follow-up Int (n=NR): 34% Net difference: +14 pct pts</p> <p>Contribution to the study of a single park user who occupied a target area for all or part of a 15-minute period</p> <p>Difference in Mean Period-Average MET Scores Between Preintervention and Postintervention (Table 3) Park overall: +0.34 METs (95% CI 0.12 to 0.56) p=0.003 Target zone 3 (fitness area): +0.33 METs (95% CI -0.07 to 0.74) p=0.11</p> <p>Activity-Level Odds Ratio (95% Confidence Interval) Table 2 Park overall: OR=1.41 (95% CI 1.21-1.63) p<0.001; Postintervention users in the park overall were estimated to have 41% higher odds of being classified in a more active category</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
	<p>characteristics post intervention</p>			<p>than were preintervention users with similar demographic characteristics.</p> <p>Target zone 3 (fitness area): OR= 1.58 (95% CI 1.14–2.18) p=0.006; Postintervention users in target area 3 were estimated to have 58% higher odds of being classified in a more active category than were preintervention users with similar demographic characteristics.</p> <p>Note: postintervention uses had significantly higher odds of being observed at a higher activity level in target area 1, 3, and 5.</p> <p>The odds ratio for a higher activity level compares postintervention users to preintervention users of the same observed age group, sex, and racial/ethnic group, and who were observed on the same type of day (weekday or weekend day).</p> <p>Models used: Proportional odds mixed-effects regression model Linear mixed-effects regression model</p> <p>Other variables controlled for in study: Day of week (weekday or weekend)</p> <p>SUMMARY: Installation of fitness equipment in a community suburban park increased overall PA levels (+0.34 METs, OR=1.41) among park users.</p>

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
<p>Author, year: Veitch et al. 2012</p> <p>Location: Victoria, Australia</p> <p>Design: Before/after with comparison</p> <p>Suitability rating: Greatest</p> <p>Intervention duration: refurbishment took place Nov – Dec 2009</p> <p>Study timeframe (Int to last follow up): Time 1 to Time 3 (T1 to T3) = Aug/Sept 2009 – Aug/Sept 2010; 12 months</p> <p>Year(s) study was implemented: 2009-2010</p> <p>Quality of Execution: Fair Limitation(s): 4</p>	<p>Setting: Park (25,200 meters²) in the most disadvantaged decile in the state of Victoria</p> <p>Geographic scale: Urban and suburban (one neighborhood)</p> <p>Study population: Adults and children using the park</p> <p>Eligibility and Recruitment: NR</p> <p>Sample size (baseline): SOPARC at T1 Int 235 Control 83</p> <p>Reported Baseline Demographics: Individual Level (Reported Intervention Park T1) Age (mean): NR # Adults >18 yrs old: 164 # Children aged 5 to 15 years: 57 # children age 2-4 years: 14 Sex: Female: 44.7%; Male: 55.3% Race/ethnicity: NR Education: NR SES: NR</p>	<p>Description: Intervention park (size: 25,200 m²) refurbishment</p> <p>Infrastructure interventions: Park-based: Included establishment of a fenced leash-free area for dogs (12,800 m²); a barbecue area; landscaping, and fencing, to prevent motor vehicle access to the park Greenways/trails: A new 365-meter walking track/trail Playgrounds: addition of an all-abilities playground</p> <p>Exposure Measurement: NR</p> <p>Comparison: The control park (size: 10,000m²) is located in the same neighborhood and had similar features as intervention park at baseline.</p>	<p>Description: Physical activity: Yes Park use: Yes Health, mental health, well-being: No Social outcomes: No Injury: No Quality of life: No Weight related (BMI): No Environmental outcomes: No Additional/other outcomes: sedentary behavior (see Appendix A)</p> <p>Outcome Measurement: PA and park use Instrument: SOPARC Number of people in the park and the activity in which they were engaging Direct observations/scans of park visitors in the park to obtain counts of the number of people in the park Recorded activity visitors were engaged in lying down or sitting; standing; moderate activity (e.g., walking); or vigorous activity (e.g., jogging,</p>	<p>Physical activity in the location: MVPA (vigorous in Table 1) MVPA counts T1 to T3 Baseline Int: 38 (16.1%) Comp: 5 (6.0%) 12-month follow-up Int: 257 (26%) Comp: 0 (0%) Change in proportion: +15.9 pct pts Relative % change: +161%</p> <p>Walking (in Table 1) Counts T1 to T3 Baseline Int: 155 (66%) Comp: 75 (90%) 12-month follow-up Int: 369 (37.4%) Comp: 51 (100%) Change in proportion: -38.6 pct pts Relative % change: -53.8%</p> <p>MVPA (combined walking and vigorous in Table 1) MVPA counts T1 to T3 Baseline Int: 193 (82.1%) Comp: 80 (96.4%) 12-month follow-up Int: 626 (63.6%) Comp: 51 (100%) Change in proportion: -18.5 pct pts Relative % change: -26.3%</p> <p>Park use: Counts of park visitors observed at the intervention and control parks (Table 1, Figure 1)</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
	<p>Neighborhood or community level: NR</p>		<p>cycling). Observations not conducted on days of forecasted rain.</p>	<p>Park use T1 to T3: Baseline Int: 235 Comp: 83 12-month follow-up Int: 985 Comp: 51 Absolute difference: +782 Relative % change: 357.7%</p> <p>There was a significant interaction between park and time for the total counts of park users, $F(2, 154) = 14.99, P < 0.001$</p> <p>Models used: Two-way ANOVA</p> <p>Other variables controlled for in study: NR</p> <p>SUMMARY: Improving an existing park resulted in an overall increase in park use and an increase in the counts of park users walking and being vigorously active.</p>
<p>Author, year: Veitch et al. 2018</p> <p>Location: Melbourne, Australia</p> <p>Design: Before/after with comparison</p> <p>(Also, 2 repeated cross-sectional surveys with local residents)</p>	<p>Setting: Metropolitan park in a low SES area in the north-eastern suburbs of Melbourne (intervention) Park in a high SES area in the eastern suburbs of Melbourne (control)</p> <p>Geographic scale: Suburban</p>	<p>Description: The Recording and Evaluating Activity in a Modified Park (REVAMP) study. Playscape installation in a metropolitan park. Intervention park (size: 329 hectares) is located 28 km northwest of Melbourne’s central business district in a low SES area</p> <p>Infrastructure interventions: Park-based: Playground located in the park Greenways/trails: No</p>	<p>Description: Physical activity: Yes, Using different measures Park use: Yes, Using different measures Health, mental health, well-being: No Social outcomes: No Injury: No</p>	<p>Park use: Counts of park visitors observed at the intervention and control parks (Table 1, Figure 1)</p> <p>Park visitors (usage) T1 to T3 (Number of park users) Baseline Int: 2374 Comp: 2382 13-month follow-up Int: 3157 Comp: 1654 Int increased by 33%</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results																																				
Park, Trail, Greenway																																								
<p>Suitability rating: Greatest</p> <p>Intervention duration: Ongoing</p> <p>Study timeframe (Int to last follow up): 13 months</p> <p>Year(s) study was implemented: 2013-2015</p> <p>Baseline assessments April–May (Autumn) 2013 (Time 1 or T1)</p> <p>Park improvement between September 2013–February 2014. First follow-up: April–May 2014 (Time 2 or T2)</p> <p>Second follow-up: April– May 2015 (Time 3 or T3)</p> <p>Quality of Execution: Fair</p> <p>Limitation(s): 3</p>	<p>Study population: Adults and children using the park</p> <p>Eligibility and Recruitment: Property owners who owned a single-family dwelling unit valued at more than \$5000 and located within 1 mile (Euclidian distance) of the greenway. Residents recruited by mail</p> <p>Sample size:</p> <table border="1" data-bbox="403 727 703 1339"> <tr> <td>SOPARC:</td> <td>T1</td> <td>T3</td> </tr> <tr> <td>Int</td> <td>2374</td> <td>3157</td> </tr> <tr> <td>Control</td> <td>2382</td> <td>1654</td> </tr> <tr> <td>Intercept:</td> <td>T1</td> <td>T3</td> </tr> <tr> <td>Int</td> <td>313</td> <td>485</td> </tr> <tr> <td>Control</td> <td>481</td> <td>558</td> </tr> <tr> <td>Resident surveys (Adult):</td> <td>T1</td> <td>T3</td> </tr> <tr> <td>Int</td> <td>294</td> <td>256</td> </tr> <tr> <td>Control</td> <td>374</td> <td>318</td> </tr> <tr> <td>Resident surveys (adults reported as proxy for Child):</td> <td>T1</td> <td>T3</td> </tr> <tr> <td>Int</td> <td>180</td> <td>144</td> </tr> <tr> <td>Control</td> <td>228</td> <td>191</td> </tr> </table> <p>Electronic path monitors:</p>	SOPARC:	T1	T3	Int	2374	3157	Control	2382	1654	Intercept:	T1	T3	Int	313	485	Control	481	558	Resident surveys (Adult):	T1	T3	Int	294	256	Control	374	318	Resident surveys (adults reported as proxy for Child):	T1	T3	Int	180	144	Control	228	191	<p>Playgrounds: Yes AUD\$1.1 million play-scape suitable for children of all abilities (swing set, maze, rockers, sandpit, nature play area, climbing equipment, landscaping)</p> <p>Exposure measurement: Ranger assessment for target zones identified in the park</p> <p>Comparison: The control park (size: 120 hectares) is located 22 km east of Melbourne’s central business district in a high SES area and is approximately 35 km from the intervention park via the road network. Included older style adventure playground.</p> <p>2 parks provided similar infrastructure and settings such as extensive walking/cycling paths, grassy open space areas and basic playground equipment at baseline.</p>	<p>Quality of life: No</p> <p>Weight related (BMI): No</p> <p>Environmental outcomes: No</p> <p>Additional/other outcomes Report Traffic counts (vehicle)</p> <p>Outcome Measurement:</p> <p>1) Park use and activity level in park, MVPA% Instrument: SOPARC Observations of park visitors (Table 1 and 2, Figure 1) Number of people in the park and the activity in which they were engaging 10 target areas in each park at baseline (T1). At T2 and T3, the play-scape was split into five additional target areas. Research staff recorded activity; visitors were engaged in lying down or sitting; standing; moderate activity (e.g., walking); or vigorous activity (e.g., jogging, cycling). Observations not conducted on days of forecasted rain.</p> <p>2) Intercept surveys Activity level when in park and park use (Table 4) Instrument: Face-to-face intercept interviews Park visitation frequency in past 3 months, usual activity level when visiting park in past</p>	<p>Comp decreased by 31% Relative change: 63.5%</p> <p>Park visitors (usage) T1 to T3 Incidence Rate Ratio = 2.45, 95% CI = 0.92–6.50, p =0.071)</p> <p>Physical activity in the location MVPA% T1 to T3 (Table 1) Baseline Int (n=2374): 33.2% Comp (n=2382): 43.2% 13-month follow-up Int (n=3157): 28.7% Comp (n=1654): 35.2% Change in mean difference or proportion: +3.5% Relative change: +5%</p> <p>Park visitors observed engaging in MVPA in the park (Incidence Rate Ratio) 128% increase from T1 to T3 (IRR = 2.28, 95% CI = 1.19–4.38, p = 0.013)</p> <p>Park use Observations in the play-scape area (Table 2) Park visitors (usage) T1 to T3 (Number of park users) Baseline Int: 132 Comp: 448 13-month follow-up Int: 1016 Comp: 90 Int increased by 670% Comp decreased by 13%</p>
SOPARC:	T1	T3																																						
Int	2374	3157																																						
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Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
	<p>T1 T3 Int 1137 1495 Control 6067 6541</p> <p>Traffic counts T1 T3 Int 2336 2780 Control 2995 2439</p> <p>Reported Baseline Demographics: Individual Level (Reported Intervention Park T1 Post sample, Table 5 Adults):</p> <p>Age (mean): Adults: 48.5 yrs; Child 8.4 years (Table 6) Children aged 2 to 15 years 65.4% Sex: Adult Female: 64.7%; Male: 35.3% Child (Table 6) Female: 50.0%; Male: 50.0% Race/ethnicity: NR Education: No formal qualifications: 14.6% Year 12/apprentice/diploma: 34.0% University degree/higher degree: 51.4% Low income: NR SES: Employment status Working full time: 36.8% Working part-time: 27.8%</p>		<p>3 months; and child’s park visitation frequency in past 3 month.</p> <p>3) Resident cross-sectional surveys Activity level when in park and park use (Table 5 and 6) Instrument: Survey that included the International Physical Activity Questionnaire (IPAQ-L)</p> <p>Transportation and leisure-time PA (Total daily PA over 7 days Not park specific) Park visitation frequency in past 3 months, usual activity level when visiting park in past 3 months; child’s park visitation frequency in past 3 months and their activity level when visiting park; time spent in transportation and leisure time in last week (IPAQ) Provided a population estimate of park visitation rather than relying solely on observation or park intercepts, which only captures visitors and may also capture repeat visitors.</p> <p>4) Electronic path monitors and car traffic counters (Table 3) Counts of walking and cycling, counts of vehicle traffic Instrument: Electronic path monitors and traffic counter</p>	<p>Park visitors (usage) T1 to T3 (IRR = 15.05, 95% CI = 4.61–49.16, p < 0.0005)</p> <p>Physical activity in the location: Park visitors observed engaging in MVPA in play-scape area MVPA% T1 to T3 (Table 2) Baseline Int (n= 132): 59.8% Comp (n= 1016): 74.5% 13-month follow-up Int (n= 448): 33.2% Comp (n= 390): 40.5% Change in mean difference or proportion: +7.4 pct pts Relative % change: +115.6%</p> <p>MVPA T1 to T3 (IRR = 24.19, 95% CI = 6.79–86.19, p < 0.0005)</p> <p>Intercept surveys with park visitors (Table 4)</p> <p>Park use Park visitors-Adults (usage) T1 to T3-one or more park visits per week over the past 3 months (Table 4) Baseline Int (n=313): 36.2% Comp (n=481): 37.4% 13-month follow-up Int (n=485): 29.7% Comp (n=558): 36.5% Int decreased by 6.5% Comp decreased by 0.9%</p> <p>Differences not statistically significant</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
	Unemployed: 22.9% Retired: 12.5% Neighborhood or community level: NR		Record counts of people walking and cycling on two pre-selected paths on the same day's observations were conducted. Traffic counter located at this entrance to record the number of vehicles entering/leaving 8 days of data collection	<p>Park visitors-Children (usage) T1 to T3- one or more park visits per week over the past 3 months (Table 4)</p> <p>Baseline Int (n=313):8.6% Comp (n=481):20.6% 13-month follow-up Int (n=485):13.1% Comp (n=558):16.4% Int increased by 4.5% Comp decreased by 4.2%</p> <p>Odds of children's regular visitation to the intervention park T3 versus T1 (OR = 2.31, 95% CI: 0.90, 5.96, p = .082)</p> <p>Physical Activity in the location: Mostly moderate activities T1 to T3 (Table 4) Baseline Int (n= 313): 46.3% Comp (n=481): 48.3% 13-month follow-up Int (n=485): 46.9% Comp (n=558): 56.5% Change in mean difference or proportion: - 7.6 pct pts Relative % change: -15.7%</p> <p>Mostly vigorous activities T1 to T3 (Table 4) Baseline Int (n= 313): 4.3% Comp (n=481): 8.8% 13-month follow-up Int (n=485): 10.5% Comp (n=558): 17.3%</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
				<p>Change in mean difference or proportion: -2.3 pct pts Relative % change: +47.6%</p> <p>Park users' odds of engaging in MVPA T3 versus T1 (OR = 0.39, 95% CI: 0.25, 0.61, p < .0005) Intervention park users having reduced odds of engaging in MVPA at T3 compared to T1 relative to the comparison park</p> <p>Resident surveys (Table 5) Adult park visitation at the intervention and control parks at T1 and T3</p> <p>Park use: Park visitors-Adults (usage) T1 to T3- one or more park visits per week over the past 3 months Baseline Int (n=294)::16.7% Comp (n=374):22.3% 13-month follow-up Int (n=256):19.1% Comp (n=318):25.8% Int increased by 2.4% Comp increased by 3.5%</p> <p>The park by time interaction effect was non-significant.</p> <p>Physical Activity in the location: Mostly moderate activities Baseline Int (n= 294): 41.9% Comp (n= 374): 50.6% 13-month follow-up Int (n= 256): 36.7% Comp (n= 318): 52.1%</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
				<p>Change in mean difference: -6.7 pct pts Relative % change: -15.4%</p> <p>Mostly vigorous activities Baseline Int (n= 294): 7.6% Comp (n= 374): 7.4% 13-month follow-up Int (n= 256): 4.2% Comp (n= 318): 9.8 Change in mean difference: -5.8 pct pts Relative % change: -77.2%</p> <p>Odds of engaging in MVPA from T1 to T3 (OR = 0.60, 95% CI: 0.38, 0.97, p = .036) Intervention park users having reduced odds of engaging in MVPA at T3 compared to T1 relative to the comparison park.</p> <p>Other measures of PA Minutes/week of leisure-time PA (mean) last 7 days Baseline Int (n= 294): 187.1 Comp (n= 374): 234.7 13-month follow-up Int (n= 256): 194.2 Comp (n= 318): 185.4 Change in mean difference: +56.4 min/week</p> <p>Minutes/week of transport PA (mean) last 7 days Baseline Int (n= 294): 143.7 Comp (n= 374): 142.1</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
				<p>13-month follow-up Int (n= 256): 154.9 Comp (n= 318): 138.3 Change in mean difference: +15.0 min/week</p> <p>No park by time interaction with regards to self-reported overall leisure-time or transport related PA among adults who had visited the intervention or control parks in the last three months</p> <p>Table 6 Proxy-reported child park visitation and MVPA at the intervention and control parks T1 and T3</p> <p>Park use: Park visitors-Children (usage) T1 to T3- one or more park visits per week over the past 3 months Baseline Int (n=180):10.6% Comp (n=228):10.1% 13-month follow-up Int (n=144):6.9% Comp (n=191):11.5% Int decreased by 6.9% Comp increased by 1.4%</p> <p>The park by time interaction effect was non-significant.</p> <p>Physical Activity in the location: Mostly moderate activities-Children Baseline Int (n= 180): 80.8% Comp (n= 228): 82.1% 13-month follow-up</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
				<p>Int (n= 144): 76.1% Comp (n= 191): 81.8% Change in mean difference: -4.4 pct pts Relative change: -5.5%</p> <p>Mostly vigorous activities-Children Baseline Int (n=180): 6.2% Comp (n=228): 5.4% 13-month follow-up Int (n=144): 11.2% Comp (n=191): 8.3% Change in mean difference: +2.1 pct pts Relative % change: +26.9%</p> <p>The park by time interaction effect for children was non-significant.</p> <p>Models used: 1) Multilevel negative binomial regression with random intercepts 2) Logistic regression for park refurbishment on odds of regular visitation who completed the intercept surveys and resident surveys 3) Equivalent logistic regression for park refurbishment on odds of adult participants (and their children) engaging primarily in MVPA while in the park</p> <p>Other variables controlled for in study: Hourly temperature; hourly rainfall, weekday or weekend day, clustering of hourly observations within measurement days</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
				<p>SUMMARY: Installation of a play-scape in a metropolitan park with different sources of data showed mixed findings for level of activity, park use (visits), park PA (% MVPA) and total PA.</p>
<p>Author, year: West et al. 2011</p> <p>Location: USA: Roanoke, Virginia</p> <p>Design: Two different analyses: Before/after with comparison Before/after without a comparison</p> <p>Suitability rating: Greatest (for before-after with comparison) Least (for no comparison analysis)</p> <p>Intervention duration: 1 month to construct greenway (baseline was in December 2007 and follow-up was 11 months after construction of greenway in December 2008)</p> <p>Study timeframe (Int to last follow up): 11 months</p>	<p>Setting: Greenway along a river in a midsize city</p> <p>Geographic scale: One greenway in one city (urban area but not specified)</p> <p>Study population: Population of surrounding city is about 94,000</p> <p>Eligibility and Recruitment: Property owners who owned a single-family dwelling unit valued at more than \$5000 and located within 1 mile of the greenway. 597 property owners were randomly selected from households living within 0.50 miles of the greenway. Another 571 owners were again randomly selected from households within 0.51 and 1.0 miles of the greenway.</p>	<p>Description: 5 miles of greenway were developed and added to an existing greenway along a river</p> <p>Infrastructure Interventions: Park-based: No Greenway/trails: Addition of greenway to an existing greenway Playground: No</p> <p>Exposure measurement: Distance from greenway</p> <p>Comparison: No comparison for some measures; another analysis with comparison made between residents living 0.5 to 1 mile away</p>	<p>Description: Physical activity: Yes Park use: NR Health, mental health, well-being: NR Social outcomes: NR Injury: NR Quality of life: NR Weight related (BMI): NR Other: NR</p> <p>Outcome Measurement: Physical activity Instrument: Survey questionnaire of walking, moderate, and vigorous activity</p> <p>Mean number of days during which each PA behavior was achieved by the respondent: at least 30 minutes of walking, at least 30 minutes of moderate activity, and at least 20 minutes of vigorous activity.</p>	<p>Before/after without comparison analysis: Means and standard deviations reported here represent the number of days during the past week in which the respondent participated in these activities.</p> <p>Total Physical Activity: Moderate activity (mean number of days in past week) Baseline Int (n=168): 1.7 11-month follow-up Int (n=169): 2.3 Change in mean difference: +0.6</p> <p>Vigorous activity (mean number of days in past week) Baseline Int (n=167): 1.3 11-month follow-up Int (n=168): 1.8 Change in mean difference: +0.5</p> <p>Other measures of PA Walking (mean number of days in the past week) Baseline Int (n=166): 2.9 11-month follow-up Int (n=169): 3.3 Change in mean difference: +0.4</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
<p>Year(s) study was implemented: December 2007-2008</p> <p>Quality of Execution: Fair Limitation(s): 4</p>	<p>Sample size: Baseline survey was sent to 1168 residents 368 responded (31.5% response rate)</p> <p>Follow-up survey: sent to the 368 residents from baseline, 166 residents responded (45.1% response rate)</p> <p>Overall response rate (respondents from the initial sample who completed both the predevelopment and post development surveys):14.5%</p> <p>Reported Baseline Demographics: (total sample reported) Individual level: n=169 Age (range) 30 and under 10.4% 31-50 45.4% 51-70 35.0% Over 70 9.2% Sex: Female: 52.4%; Male: 47.6% Race/ethnicity: White: 90.2% African American: 6.1% Hispanic: 3.7% Education: NR Low income: <\$15,000: 14.7%</p>			<p>Before-after with comparison: Measures below are comparing proximate (within 0.5 miles) and less proximate residents (0.5 to 1 mile).</p> <p>Total Physical Activity: Moderate activity (mean number of days in past week) Baseline Int (n=94): 1.76 (1.99) Comp (n=73): 1.63 (1.81) 11-month follow-up Int (n=94): 2.39 (1.93) Comp (n=73): 2.11 (1.91) Change in mean difference: +0.15 Relative % change: +6.3%</p> <p>Vigorous activity (mean number of days in past week) Baseline Int (n=94): 1.41 (1.69) Comp (n=73): 1.25 (1.79) 11-month follow-up Int (n=94): 1.87 (1.71) Comp (n=73): 1.71 (1.78) Change in mean difference: 0.0 Relative % change: 0</p> <p>Other measures of PA Walking (mean number of days in past week) Baseline Int (n=93): 3.00 (2.47) Comp (n=93): 2.84 (2.25) 11-month follow-up Int (n=73): 3.48 (2.39) Comp (n=73): 3.1 (2.27) Change in mean difference: 0.22</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results																																								
Park, Trail, Greenway																																												
	<p>\$15,000-45,000: 30.8% 45,001-100,000: 32.1% >\$100,000: 17.3%</p> <p>Neighborhood or community level: NR</p>			<p>Mixed Between-Within Subjects ANOVAs</p> <table border="1"> <thead> <tr> <th></th> <th>F</th> <th>Df</th> <th>Eta2</th> <th>Adjusted P</th> </tr> </thead> <tbody> <tr> <td>Walking Prepost</td> <td>9.210</td> <td>164</td> <td>0.053</td> <td>0.003*</td> </tr> <tr> <td>Moderate activity Prepost</td> <td>25.216</td> <td>165</td> <td>0.133</td> <td>0.000*</td> </tr> <tr> <td>Vigorous activity Prepost</td> <td>28.396</td> <td>165</td> <td>0.147</td> <td>0.000*</td> </tr> </tbody> </table> <p>*P<.001</p> <p>Significant difference between pre and post intervention activity found in ANOVAS for all outcomes.</p> <p>Mixed Between-Within Subjects ANOVAs with interaction effect</p> <table border="1"> <thead> <tr> <th></th> <th>F</th> <th>Df</th> <th>Eta2</th> <th>Adj. P</th> </tr> </thead> <tbody> <tr> <td>Walking Prepost x proximity</td> <td>.832</td> <td>164</td> <td>.005</td> <td>.363</td> </tr> <tr> <td>Moderate activity Prepost x proximity</td> <td>.509</td> <td>165</td> <td>.003</td> <td>.476</td> </tr> <tr> <td>Vigorous activity Prepost x proximity</td> <td>.002</td> <td>165</td> <td>.000</td> <td>.962</td> </tr> </tbody> </table> <p>No significant difference between intervention and control groups found in ANOVAs for any outcomes</p> <p>Models used: Analysis of variance (ANOVA)</p> <p>Other variables controlled for in study: NR</p> <p>SUMMARY: Before/after without comparison: After completion of the greenway, survey responses showed</p>		F	Df	Eta2	Adjusted P	Walking Prepost	9.210	164	0.053	0.003*	Moderate activity Prepost	25.216	165	0.133	0.000*	Vigorous activity Prepost	28.396	165	0.147	0.000*		F	Df	Eta2	Adj. P	Walking Prepost x proximity	.832	164	.005	.363	Moderate activity Prepost x proximity	.509	165	.003	.476	Vigorous activity Prepost x proximity	.002	165	.000	.962
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Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
				<p>an increase in the mean number of days spent walking, and in moderate and vigorous activity for residents who lived a mile or less from the greenway.</p> <p>Before/after with comparison: After the completion of the greenway, survey responses showed an increase in mean number of days spent walking and in moderate PA per week for both intervention (those living 0.5 mile or less away) and control groups (those living 0.51-1 mile away), with a greater change in the intervention group.</p> <p>However, a significant interaction effect between greenway development and residential proximity was not detected for any of the three outcomes.</p>
<p>Author, year: West et al. 2015</p> <p>Location: USA: Mecklenburg County, North Carolina</p> <p>Design: Before/after with comparison</p> <p>Suitability rating: Greatest</p> <p>Intervention duration: 2010 (about a year)</p>	<p>Setting: Trail added to an existing trail in a small Southeastern city</p> <p>Geographic scale: 1 trail, residents within 3 miles of trail (urban area but not specified)</p> <p>Study population: about 29,000 in the city, though study population specifically included those living within 3 miles of the green trail</p> <p>Eligibility and Recruitment: For</p>	<p>Description: 1.93 miles of greenway were developed and added to an existing greenway</p> <p>Infrastructure interventions: Park-based: No Greenways/trails: New greenway addition Playgrounds: No</p> <p>Exposure measurement: Residents within 1 mile of trail (intervention group) and 2 to 3 miles (control group)</p> <p>Comparison: Residents living within 2 to 3 miles of the trail</p>	<p>Description: Physical activity: Yes Park use: NR Health, mental health, well-being: NR Social outcomes: NR Injury: NR Quality of life: NR Weight related (BMI): NR Other: NR</p> <p>Outcome Measurement:</p>	<p>Total Physical Activity: Mean number of days spent in MPA for at least 30 minutes (in the past week) Baseline Int (n=130): 1.68 (SD 1.91) Comp (n=65): 1.94 (SD 2.07) 12-month follow-up Int (n=135): 1.60 (SD 1.96) Comp (n=68): 1.76 (SD 2.19) Change in mean difference or proportion: 0.1 Relative % change: +4.5%</p> <p>Mean number of days spent in VPA for at least 30 minutes (in the past week) Baseline Int (n=132): 1.42 (SD 1.79) Comp (n=62): 1.86 (SD 2.21) 12-month follow-up</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
<p>Study timeframe (Int to last follow up): A little less than one year</p> <p>Year(s) study was implemented: November 2009-2011</p> <p>Quality of Execution: Fair Limitation(s): 3</p>	<p>intervention group: single family homes within 1 mile of the greenway (n=1964). For control, single family homes within 2 to 3 miles of the greenway (n=4281). Houses were randomly sampled from the list of identified eligible houses, intervention = 800 Control = 500</p> <p>Sample size: 524/1300 returned the initial survey (40.3% response rate)</p> <p>Follow-up: 480 possible participants (44 participants moved since baseline) 207 responses/480 = 43.1% follow-up rate</p> <p>Reported Baseline Demographics Individual level (N=273 Total sample): Age (range): 30 and under 2.0% 31-50 38.8% 51-70 47.3% Over 70 11.9% Sex: Female: 41.1%; Male: 57.5% Race/ethnicity: White: 90%</p>		<p>Physical activity Instrument: Survey questionnaire to neighborhood households Number of days physically active for at least 30 minutes in the last 7 days through: walking, moderate PA (MPA), or vigorous PA (VPA)</p>	<p>Int (n=136): 1.40 (SD 1.86) Comp (n=65): 1.51 (SD 2.32) Change in mean difference or proportion: 0.33 Relative % change: 17.4%</p> <p>Other measures of PA Mean number of days spent walking for at least 30 minutes (in the past week) Baseline Int (n=129): 2.57 (SD 2.17) Comp (n=62): 2.71 (SD 2.09) 12-month follow-up Int (n=130): 2.91 (SD 2.21) Comp (n=67): 2.88 (SD 2.28) Change in mean difference or proportion: 0.17</p> <p>Models used: Ordinary least squares Regressions analyses (model c from Table 4) for distance to nearest trail entrance</p> <p>Walking: 0.21, NS MPA: 0.44, NS VPA: 0.105, NS</p> <p>Other variables controlled for in study: age, gender (male, female), income category (<\$15,000, \$15,000-\$45,000, \$45,001-\$100,000, and > \$100,000), and BMI status (underweight, healthy weight, overweight, obese)</p> <p>SUMMARY: The new addition to the greenway did not impact residents' PA levels. There was no increase in the activity levels of residents who lived</p>

Study	Population Characteristics	Intervention Characteristics	Outcomes	Results
Park, Trail, Greenway				
	African American: 3% Asian/Asian American: 3% Nonwhite Hispanic/Latino: 1.5% Other: 2.5% Education: NR Low income: <\$15,000 – 2.2% \$15,000-45,000: about 25% \$45,001-74,999: not reported (but 62.7% of final sample had an income range of \$45,001-\$100,000) \$75,000-100,00: about 33% >\$100,000: 8.1% BMI: Underweight: 2.2% Normal weight: 45.1% Overweight: 34.8% Obese: 17.9% Neighborhood or community level: NR			within 1 mile (close proximity) compared to those who lived between 2 to 3 miles of the greenway.

Appendix A: Additional Outcomes

Andersen et al. 2017	Mean BMI (SD) Baseline: 18.7 (3.3) 12 months follow up: 19.4 (4.2) Net difference: +0.7 p<0.001 (Table 1) Sedentary behavior Unadjusted median minutes (range)
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Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

	<p>Baseline: 27 (0–559) Post-renewal: 49.5 (0–586.8) Mean change: 13.1 min. (95%CI 1.9–28.2) p=0.043</p>
Dobbinson et al. 2020	<p>Outcomes from park user intercept interviews are summarized in Table 3 and narratively summarized here (Total number of interviews was small T1=88; T3=66)</p> <p>Self-reported emotional state based on Positive and Negative Affect Schedule (PANAS) responses: Positive: Reduced at follow up in intervention arm but differences were not statistically significant (p=0.20) Negative: Reduced at follow up in intervention arm but differences were not statistically significant (p=0.28)</p> <p>Self-assessed community cohesion score at follow up (post only comparative assessment) Intervention: Improved but not statistically significant p=0.34</p>
Sami et al. 2018	<p>Distribution of activity levels in park at pre-intervention and post-intervention (Figure 3) % of person-periods Estimated from graph in Figure 3</p> <p>Overall (park overall) Sedentary Baseline Int (n=NR): 47% 2/3-month follow-up Int (n=NR): 18% Net difference: -29 pct pts</p> <p>Target zone 3 (fitness area) Sedentary Baseline Int (n=NR): 15% 2/3-month follow-up Int (n=NR): 19% Net difference: +4 pct pts</p>
Veitch et al. 2012	<p>Sedentary behavior (calculated from Table 1 counts; combined lying down and standing up) T1 to T3 Baseline Int: 42 (17.9%) Comp: 3 (3.6%) 12-month follow-up Int: 359 (36.4%) Comp: 51 (100%) Change in proportion: -77.9 pct pts</p>
Veitch et al. 2018	<p>Table 3 total path monitor and traffic counts at the intervention and control parks at the three time-points</p> <p>Path monitor counts (Table 3) Baseline</p>

Park, Trail, and Greenway Infrastructure Interventions when Implemented Alone—Summary Evidence Table

	<p>Int: 1137 Comp: 6541 13-month follow-up Int: 1495 Comp: 6541 Change in mean difference: -116</p> <p>Insufficient cases to run inferential analysis for path monitor data as path monitor counts were recorded as total daily counts.</p> <p>Traffic counts (Table 3) Baseline Int: 2336 Comp: 2995 13-month follow-up Int: 2903 Comp: 2439 Change in mean difference: +1123</p> <p>Differences in traffic counts at each time point at the intervention park relative to the control park were not statistically significant.</p>
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