The National Study of Neighborhood Parks

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Physical activity is critical for health

要点:
- Moderate-to-vigorous physical activity is protective (MVPA)
- Physical inactivity is a huge problem in the United States
- Risk factor for
  - Heart disease
  - Type 2 diabetes
  - Osteoporosis
  - Cancer
  - Hypertension
  - Depression
  - Premature death

*Lee et al., 2012
Parks are venues for physical activity

- Sports facilities
- Walking paths/green space
- Playgrounds
- Active recreation
Parks are venues for physical activity

About 50% to 70% of U.S. urban residents live within walking distance of a neighborhood park.
National Study of Neighborhood Parks (NSNP)

- Employed a stratified four-stage complex sampling design
- Stratified to achieve geographical representativeness nationally and locally in terms of park acreage and socio-economic status
- Eligibility: Neighborhood parks in all U.S. cities with a population of 100,000 or more (2010 census) that were
  - between 3 and 20 acres (relaxed for some places)
  - located in populated areas within city boundaries
  - managed by city recreation and parks departments
  - not sharing fields with local schools
  - not a specialized site (e.g., Griffith Observatory, a boxing gym)
Participating parks and data collection

- 174 parks in 2014
- 193 parks in 2016 (added Minneapolis and Portland)
- Data collected during spring and summer of 2014 and 2016
- Data collectors trained in central location over a 2-day period
  - Direct observation of park users and park areas
  - Interviews with adult park users
  - Surveys of park management practices
Example of park mapping
Main Findings To Date

Who is using parks?
What neighborhood factors affect park use?
How do facilities and amenities affect park use?
Who is using parks?
Park use varies by age group

Weekly park use (2014)

Person hours

<table>
<thead>
<tr>
<th>Age groups</th>
<th>Person hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children</td>
<td>588</td>
</tr>
<tr>
<td>Teenagers</td>
<td>204</td>
</tr>
<tr>
<td>Adults</td>
<td>685</td>
</tr>
<tr>
<td>Seniors</td>
<td>64</td>
</tr>
</tbody>
</table>
Park users are more likely to be male than female

Overall: Males 57%
Females 43%

Cleveland: Males 65%
Females 35%

Weekly park use (2014)

Age groups

- Children: 238
  - Female: 350
  - Male: 132

- Teenagers: 72
  - Female: 132
  - Male: 50

- Adults: 337
  - Female: 137
  - Male: 200

- Seniors: F=28, M=36

Person hours

0 100 200 300 400 500 600 700 800
Adults and seniors are under-represented based on their percentage of the population.

- Children: 38% vs. 20% in pop
- Teenagers: 13% vs. 7% in pop
- Adults: 44% vs. 55% in pop
- Seniors: 4% vs. 18% in pop

3% in Cleveland parks
Gender disparities in sports participation among park users . . .

Sports among **females:**
- 8% of children
- 4% of teens
- <1% adults or seniors

Sports among **males:**
- 33% of children
- 37% of teens
- 27% of adults
- 6% of seniors
What accounts for increased park use?

- 1 more acre: 9%
- 10K more people: 13%
- 10% reduction in poverty level: 14%
- 4 more facilities: 14%
- 1 more supervised activity: 48%
- On-site marketing: 62%

Average hourly park use is 20 persons per hour.
Parks with walking loops have more users, especially seniors

- Compared to parks without loops, parks with walking loops had
  - 80% more users
  - over twice as many seniors

- MVPA levels were 90% higher

- Additional park use and park-based physical activity occurred throughout the park

- Parks without loops were more than twice as likely to be empty during observations
Cleveland Study Parks—Only 1 had a walking loop
## Top 10 park facilities generating Moderate-to-Vigorous Physical Activity (MVPA)*

<table>
<thead>
<tr>
<th></th>
<th>Facility</th>
<th>Person-hours of MVPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Walking Path</td>
<td>1843</td>
</tr>
<tr>
<td>2</td>
<td>Gym</td>
<td>1585</td>
</tr>
<tr>
<td>3</td>
<td>Pool</td>
<td>972</td>
</tr>
<tr>
<td>4</td>
<td>Skate park</td>
<td>872</td>
</tr>
<tr>
<td>5</td>
<td>Fitness zone</td>
<td>804</td>
</tr>
<tr>
<td>6</td>
<td>Water feature</td>
<td>678</td>
</tr>
<tr>
<td>7</td>
<td>Outdoor basketball</td>
<td>582</td>
</tr>
<tr>
<td>8</td>
<td>Exercise area</td>
<td>578</td>
</tr>
<tr>
<td>9</td>
<td>Baseball</td>
<td>510</td>
</tr>
<tr>
<td>10</td>
<td>Sports field</td>
<td>499</td>
</tr>
</tbody>
</table>

*Compared to 100 person-hours of MVPA in a sitting area*
Many cities continued to lack park programming

In **19**% of cities: No neighborhood parks had recreational programming.

In **62**% of cities: Fewer than half of parks had recreational programming.

In **35**% of cities: All or more than half of park programming was offered by the private sector.

In **8**% of cities: There were no private/non-profits offering programming.
Cleveland Parks: Use and Supervised Activities

<table>
<thead>
<tr>
<th>Cleveland, OH</th>
<th>Acres</th>
<th>% Poverty (1-mile radius)</th>
<th>Population Estimate (1-mile radius)</th>
</tr>
</thead>
<tbody>
<tr>
<td>cl01 Artha Woods Park</td>
<td>6.1</td>
<td>32.1%</td>
<td>18,312</td>
</tr>
<tr>
<td>cl02 Earle B Turner Recreation Center</td>
<td>3.4</td>
<td>29.1%</td>
<td>14,247</td>
</tr>
<tr>
<td>cl03 Goudreau Park</td>
<td>4.6</td>
<td>12.8%</td>
<td>12,511</td>
</tr>
<tr>
<td>cl04 Lonnie Burten Recreation Center</td>
<td>8.0</td>
<td>62.1%</td>
<td>13,426</td>
</tr>
<tr>
<td>cl05 Maplewood Park</td>
<td>16.0</td>
<td>18.5%</td>
<td>7,833</td>
</tr>
<tr>
<td>cl06 Neff Park</td>
<td>7.8</td>
<td>22.8%</td>
<td>16,674</td>
</tr>
<tr>
<td>cl07 Sam Miller Park</td>
<td>5.7</td>
<td>34.6%</td>
<td>11,737</td>
</tr>
<tr>
<td>cl08 Worthington Park</td>
<td>8.1</td>
<td>20.2%</td>
<td>20,943</td>
</tr>
<tr>
<td>cl09 Michael Zone Recreation Center</td>
<td>20.5</td>
<td>37.9%</td>
<td>27,597</td>
</tr>
</tbody>
</table>

Weekly Park Use (Person x Hours)
How do features/amenities affect park use?
Association between park features/amenities and park use

- Highway adjacent
- Sign prohibits physical activity: -37%
- Sign promotes physical activity: 46%
- Picnic area: 50%
- Bike racks: 58%
- Parking lot: 67%
- Outdoor shelter: 68%
- Grills: 80%
- Drinking fountain: 86%
- Bathrooms: 118%
Some park amenities and features were associated with longer stays in the park.

Additional minutes of stay with amenity present:

- Each additional facility: 2
- Picnic area: 9
- Children's play area not fenced: 11
- Bleachers: 12
- Parking lot: 12
- Baseball field: 13
How does playground design affect park use?

Artha Woods Playground

Earl Turner Playground

Michael Zone Playground
We examined playground use in parks

- Average neighborhood park was 8.8 acres and hosted about 1,530 person-hour visits/week
- 25% of all park use was in the playgrounds
- Playgrounds were the most common facility (89% of parks had them)
- Most common reason cited by adults for going to parks was to bring children (52%)
There were many common playground elements

Percentage of playgrounds with the element

- Slide: 92%
- Climbing ladder: 91%
- Swings: 83%
- Crawling tube: 32%
- Balance element: 31%
- Shade structure: 27%
- Spinner: 24%
- Sandbox: 13%
- Splash pad: 11%
Playground surfaces vary

Percentage of playgrounds with the surface

- Mulch: 42%
- Rubber: 42%
- Pavement: 35%
- Sand: 28%
- Grass: 18%
- Dirt: 15%

Worthington Playground
Some playground element types are associated with greater playground use
There is more playground use among females than males, especially among adults.

On average, playgrounds had about 5 users/hour, or 389 person-hour visits/week.
But girls engage in less MVPA (moderate-to-vigorous activity) in playgrounds

🌿 Boys engage in more MVPA than girls (44% vs 34%)
Playgrounds in higher- and lower-income neighborhoods are similar in many ways

- Have similar types and numbers of elements
- No difference in the percentage of users engaging in MVPA
- However, across cities, high-poverty area parks are more likely to have a splash pad:
  - 87 parks $\geq$ 13.5% households in poverty had 14 splash pads
  - 85 parks $<$ 13.5% households in poverty had 5 splash pads ($p=.03$)
    - But no significant difference within cities
How does poverty impact playground use?

Every 10 percentage point increase in household poverty rates among residents within a 1-mile radius of a park was associated with roughly 20% fewer playground users.
We surveyed park users: 1,872 respondents from 178 parks

- 47% Males
- 53% Females
- 15% 18-25
- 44% 26-39
- 32% 40-59
- 10% 60+
Most users lived <1 mile from the park

Distance from park:
- < 1/4 mile: 33%
- 1/4-1/2 mile: 18%
- 1/2 - 1 mile: 15%
- >1 mile: 34%
Park users in high- and low-poverty neighborhoods had similar views of their parks.

Average score on scale of 1 to 5 to “What do you think of this park?

- **Parks in neighborhoods >13.5% in poverty**
- **Parks in neighborhoods < 13.5% households in poverty**

* indicates significant difference between groups.
Factors associated with park user perceptions of park quality

Difference in perception of excellence on 5-point scale

Unwelcoming: -0.4
Boring: 0.1
Poorly maintained: 0.1
Stressful: 0.2
Unattractive: 1
Welcoming: 0.1
Interesting: 0.1
Well-maintained: 0.2
Relaxing: 0
Attractive: 0
Quiet: 0
There were many similarities among high- and low-poverty area park users

- Similar duration of stay
- Similar frequency of visits
- Similar perception of park conditions and quality
- Different perceptions of safety:
  - 20% of park users in high poverty neighborhoods perceive park as unsafe
  - vs. 5% of park users in low poverty neighborhoods.
Recap of key points

- Neighborhood parks are being maintained and renovated, but most lack programming and supervised activities.
- Facilities and amenities contribute both to park use and duration of stay.
- Playgrounds with more elements are used more, but there are significant gender disparities in playground use.
- Park users give high marks for their neighborhood parks, similar in both high and low poverty neighborhoods.
Conclusion

- If parks increased amenities, facilities, and activities, park use and physical activity would likely also increase substantially—but this needs to be tested.
- However, current resources are inadequate.
- Large disparities in park use by age and gender persist.
- Differences in playground use by neighborhood poverty level are likely due to safety considerations, rather than facilities.
- More work is needed to address disparities.
Top Recommendations

• Increase supervised activities in parks
• Add walking paths to parks where feasible
• Develop activities/programming for females and seniors
• Increase programming, facilities, and amenities to mitigate the negative impact of poverty on park use in low-income neighborhoods