Effects of Park Improvements on Park Use and Physical Activity: Policy and Programming Implications

Deborah Cohen, Thom McKenzie, Amber Sehgal, Terry Marsh, Stephanie Williamson, Daniela Golinelli

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RAND Center for Population Health and Health Disparities
Primary Goal

- To determine whether facility improvements in parks result in increases in physical activity among children and adults
Ballot Initiative: Proposition K

• Passed in 1996

• Allocates $25 million per year for 30 years to improve parks and open spaces in the City of Los Angeles

• Serves as natural experiment to understand how parks might contribute to population level physical activity
Study Components

• Includes community based participation
• Focuses on new recreation centers and improvements over $1,000,000
• Requires observing activity in parks, including gender, age group and race/ethnicity
• Includes surveys of park users and individuals who live in local neighborhoods
Parks Studied

• 10 Neighborhood parks (5 intervention, 5 control)

• 2 Skate parks (1 intervention, 1 comparison)

• 2 Senior citizens’ centers (1 intervention, 1 comparison)
SOPARC Observation Methods*

- Park activity was observed four times per day
  - 7:30 - 8:30am
  - 12:30 - 1:30pm
  - 3:30 - 4:30pm
  - 6:30 - 7:30pm

- Park activity was observed for each day of the week and primary and secondary activities in each target area recorded, including being a spectator.

- Individuals were counted and recorded by:
  - Gender (female or male)
  - Age group (child, teen, adult, or senior)
  - Race/ethnicity (Latino, black, white, or other)
  - Activity level (sedentary, walking, or vigorous)

*SOPARC found to be reliable*
Survey Methods

• Park users were surveyed based on:
  • Target Area (busy and quiet areas)
  • Activity Level (sedentary, walking, or vigorous)
  • Gender (50% male, 50% female)

• Neighborhood residents were surveyed based on random selection of households in specified increments from the park:
  • 1/4 mile
  • 1/2 mile
  • One mile
  • Two miles
Promotoras
Counter
Park Map of Activity Areas

BELLEVUE RECREATION CENTER

- Hill & Trees 18
- Dirt Area 19
- Child Care
- Parking Lot
- Walking Path
- Baseball Field 15
- Lawn 13
- Squash 12
- Gymnastics Equipment 10
- Lawn 8
- Play Area 11
- GYM 1
- Parking 3
- Lawn 2
- Sidewalk 4
- Play Area 5
- Lawn 6
- Lawn 17
- Baseball Field 16
- Lawn 14
- Lawn 1
Skate Park to be Remodeled, 2004
Remodeled Skate Park, 2007
Comparison Park
## Comparison of Neighborhoods Characteristics of Skate Parks

<table>
<thead>
<tr>
<th></th>
<th>Pedlow</th>
<th>Monrovia</th>
</tr>
</thead>
<tbody>
<tr>
<td>% White only</td>
<td>55.1%</td>
<td>63.1%</td>
</tr>
<tr>
<td>% African American only</td>
<td>6.1%</td>
<td>8.3%</td>
</tr>
<tr>
<td>% Asian only</td>
<td>6.7%</td>
<td>7.2%</td>
</tr>
<tr>
<td>% Hispanic or Latino (of any race)</td>
<td>50.4%</td>
<td>35.3%</td>
</tr>
<tr>
<td>% individuals living below poverty level</td>
<td>17.9%</td>
<td>12.5%</td>
</tr>
<tr>
<td>Population density within a 1 mile radius</td>
<td>61,555</td>
<td>24,719</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, Summary File 1 (SF 1) and Summary File 3 (SF 3)
Change in Number of Skate Park Users

- Remodeled Skate Park
- Comparison Skate Park

# of Park Users

Baseline
Followup
Change in Number of Skate Park Users

- Remodeled Skate Park
- Comparison Skate Park

# of Park Users
0 500 1000 1500 2000

Baseline
Follow-up

RAND
A HUGE INCREASE at Remodeled Skate Park

(More than 6x as many users)

![Bar chart showing increased usage of the skate park]

- **Baseline**
- **Follow-Up**

- **Children**: Baseline: 100, Follow-Up: 500
- **Teens**: Baseline: 100, Follow-Up: 700
- **Adults**: Baseline: 50, Follow-Up: 600
- **Seniors**: Baseline: 0, Follow-Up: 10
Girls Increased by 11x, Boys by 6x
Other Skate Park Changes

• Summer Camp
• Class on Saturday and Sunday
• More staff added
Senior Citizen's Center to be Remodeled
# Senior Centers

<table>
<thead>
<tr>
<th></th>
<th>Remodeled</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population in Tract</td>
<td>8,569</td>
<td>4,898</td>
</tr>
<tr>
<td>% &gt; 60 yrs</td>
<td>19%</td>
<td>8%</td>
</tr>
<tr>
<td>% White</td>
<td>55%</td>
<td>52%</td>
</tr>
<tr>
<td>% in poverty</td>
<td>11%</td>
<td>23%</td>
</tr>
</tbody>
</table>
Follow-up

• Conducted three months after center re-opened
• New director at remodeled center
Baseline Number of Users
Two Senior Citizen Centers

Number of Users

Re-Model  Comparison

2005  2007
Change in Number of Users

Two Senior Citizen Centers

![Bar graph showing the number of users in 2005 and 2007 for re-model and comparison categories.](image-url)
Sr. Citizens Centers - Change in Participation

<table>
<thead>
<tr>
<th>Category</th>
<th>2005</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td># Program Hours Remodeled Center</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td># Hours Open, Remodeled Center</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td># Program Hours in Comparison Center</td>
<td>35</td>
<td>40</td>
</tr>
<tr>
<td># Hours Open, Comparison Center</td>
<td>70</td>
<td>75</td>
</tr>
</tbody>
</table>

RAND
April 2008
Use of Exercise Machines

• Only 15 people observed using machines in 28 observation periods
  – 9 seniors
  – 6 adults
Changes in Use of Walking Path by Seniors

# Seniors observed

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remodel</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Comparison</td>
<td>70</td>
<td></td>
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</table>

April 2008
Changes in Use of Walking Path by Seniors

# Seniors observed

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remodel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparison</td>
<td></td>
<td></td>
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</tbody>
</table>

RAND
Interpretation

• Programming increased in comparison, but decreased in remodeled senior center

• Social factors possibly more important for elderly compared to youth, where physical challenges may be more attractive

• May be measured too soon; longer term follow-up scheduled.
10 Neighborhood Parks

• Most parks included in this study are in predominantly Latino and African-American neighborhoods

• Most parks studied are in low-income neighborhoods (average 31% households in poverty) and serve an average of 67,000 people in 1 mile radius and 210,000 people in 2 mile radius

• Park size ranges from 3.4 to 16 acres, with an average of 8 acres
What Is the Effect of Adding New Facilities to Parks?

Replace this rec center . . .
What Is The Effect of Adding New Facilities to Parks?

Replace this rec center . . .

. . . with this new center
Old Sport Facilities Before Improvements
New Gym After Improvements
Play Area Prior to Improvements
Improved Play Area
Undeveloped Space
New Picnic Area
Tennis Courts Replaced with Gym
Baseline Park Use

Baseline: Avg of 2000 persons observed per park
Overall, Use of 10 Parks Declined

Baseline: Avg of 2000 persons observed per park
Follow-up: avg of 1500 persons observed per park
Park Users by Gender

Baseline vs Follow-up

Male
- Children
- Teens
- Adults
- Seniors

Female
- Children
- Teens
- Adults
- Seniors
Many Target Areas in the Parks were Empty

Baseline: 57% empty
Follow-up: 69% empty
Number of Organized Activities Over Time

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gymnasium</td>
<td>35</td>
<td>27</td>
</tr>
<tr>
<td>Outdoor Basketball Court</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Multi-purpose Field</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Baseball Field</td>
<td>27</td>
<td>9</td>
</tr>
</tbody>
</table>

April 2008
Walking Paths

(comparison park)
Level of Activity Over Time

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sedentary</td>
<td>63%</td>
<td>62%</td>
</tr>
<tr>
<td>Walking</td>
<td>21%</td>
<td>27%</td>
</tr>
<tr>
<td>Vigorous</td>
<td>16%</td>
<td>11%</td>
</tr>
</tbody>
</table>
Over Time, There Was a Decrease in Use for 7 of 10 Parks
Number of Users by Target Area Type

- Baseball
- Basketball
- Gymnasium
- Lawn
- Picnic Area
- Playground
- Gymnastics Equipment
- Sidewalk
- Multi-purpose Field

- Baseline
- Follow-up

# of Park Users

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Gymnasium Users by Park

- **No gym at baseline**

![Bar chart showing gymnasium users by park](chart.png)
Baseball Field Users by Park

![Bar chart showing the number of baseball field users by park. The chart includes bars for baseline and follow-up data. Park 7 has significantly more users compared to other parks.](chart.png)
Playground Users by Park

Baseline vs. Follow-up

# of Playground Users

Park 1 | Park 2 | Park 3 | Park 4 | Park 5 | Park 6 | Park 7 | Park 8 | Park 9 | Park 10

Baseline:
- Park 1: 180
- Park 2: 250
- Park 3: 150
- Park 4: 100
- Park 5: 120
- Park 6: 50
- Park 7: 350
- Park 8: 300
- Park 9: 300
- Park 10: 150

Follow-up:
- Park 1: 150
- Park 2: 220
- Park 3: 180
- Park 4: 110
- Park 5: 100
- Park 6: 40
- Park 7: 350
- Park 8: 300
- Park 9: 300
- Park 10: 120
Reported Frequency of Park Use

Baseline
Follow-up

% of Park Users and Residents

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Baseline</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>20%</td>
<td>25%</td>
</tr>
<tr>
<td>&gt;1 x week</td>
<td>45%</td>
<td>40%</td>
</tr>
<tr>
<td>&gt;1 x month</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>&lt; once month</td>
<td>5%</td>
<td>3%</td>
</tr>
<tr>
<td>Only once</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Never</td>
<td>1%</td>
<td>2%</td>
</tr>
</tbody>
</table>
Reported Frequency of Park Use Also Decreased

![Bar Chart]

% of Park Users and Residents

- Daily
- > 1 x week
- > 1 x month
- < once month
- Only once
- Never

Baseline vs. Follow-up
People Felt the Parks Were Safer

- Very safe
- Safe
- Not very safe
- Not safe at all

% Respondents

% Baseline □ % Follow-up
What Happened?

• Secular trend for decreased park use

• Improving facilities and making parks safer won’t necessarily increase park use

• Reduced hours for several gyms; shortened baseball season

• Reduced “face time” with public, more administrative tasks

• No budget increases for more staff or programs, only cuts or flat funding
Why Did Park Use Seem to Have Gone Down After Improvements Were Made?

• Improving physical structures alone may not change physical activity

• Social structures need to be in tune with physical changes
Findings Emphasize Importance of Both Physical and Social Factors in the Environment

- Venues and physical features of a location matter in determining
  - What activity occurs
  - Intensity of activity

- Social factors are potential multipliers of PA
  - Determine when and whether people will be exposed to specific physical environments
Jane Jacob’s View of Parks

• People confer use on park

• Location is critical

• Absent location, parks have to provide “demand goods”
Variation in Number of Park Programs

<table>
<thead>
<tr>
<th>Park Name</th>
<th>Number of Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hollenbeck Rec Ctr</td>
<td>5</td>
</tr>
<tr>
<td>Martin J. Bogdanovich Rec Cntr</td>
<td>0</td>
</tr>
<tr>
<td>Denker Rec Cntr</td>
<td>5</td>
</tr>
<tr>
<td>Roscrans Rec Cntr</td>
<td>10</td>
</tr>
<tr>
<td>Tarzana Rec Cntr</td>
<td>10</td>
</tr>
<tr>
<td>Barrington Rec Cntr</td>
<td>10</td>
</tr>
<tr>
<td>Toberman Rec Cntr</td>
<td>10</td>
</tr>
<tr>
<td>Yosemite Rec Cntr</td>
<td>10</td>
</tr>
<tr>
<td>Poinsettia Rec Cntr</td>
<td>10</td>
</tr>
<tr>
<td>Lincoln Heights Rec Cntr</td>
<td>10</td>
</tr>
<tr>
<td>109th Street Rec Cntr</td>
<td>10</td>
</tr>
<tr>
<td>Palisades Rec Cntr</td>
<td>10</td>
</tr>
<tr>
<td>Panorama Rec Cntr</td>
<td>10</td>
</tr>
<tr>
<td>Vineyard Rec Cntr</td>
<td>10</td>
</tr>
<tr>
<td>North Hollywood Rec Cntr</td>
<td>10</td>
</tr>
<tr>
<td>Palms Rec Cntr</td>
<td>10</td>
</tr>
<tr>
<td>Queen Anne Rec Cntr</td>
<td>10</td>
</tr>
<tr>
<td>David M. Gonzales Rec Center</td>
<td>10</td>
</tr>
<tr>
<td>Glassell Park Rec Cntr</td>
<td>10</td>
</tr>
<tr>
<td>Silverlake Rec Ctr</td>
<td>10</td>
</tr>
<tr>
<td>Alpine Rec Cntr</td>
<td>5</td>
</tr>
<tr>
<td>Shatto Rec Cntr</td>
<td>0</td>
</tr>
<tr>
<td>Valley Plaza Recreation Center</td>
<td>0</td>
</tr>
</tbody>
</table>
Variation in Program Participation Not Explained by Park Size or Population Characteristics

Participants at Each Park

Hollenbeck Rec Ctr  Vineyard Rec Cntr  Roscrans Rec Cntr  Denker Rec Cntr
Toberman Rec Cntr  109th Street Rec Cntr  David M. Gonzales Rec Center  Shatto Rec Cntr
Palisades Rec Cntr  Palms Rec Cntr  Poinsettia Rec Cntr  North Hollywood Rec Cntr
Glassell Park Rec Cntr  Lincoln Heights Rec Cntr  Queen Anne Rec Cntr  Panorama Rec Cntr
Martin J. Bogdanovich Rec Cntr  Silverlake Rec Cntr  Tarzana Rec Cntr  Yosemite Rec Cntr
Barrington Rec Cntr  Encino Comm Ctr  Alpine Rec Cntr  Valley Plaza Recreation Center
1. # Annual Meetings
   • Average: 3.8
   • Range: 1 – 8

2. # Annual Events
   • Average: <1
   • Range: 0 – 3

3. PAB / Park relationship
   • Average: 4.3
   • Range: 0 – 5

4. Approximately half of all PABs participated in fundraising in 2007
Conclusion

• Other issues that determine park programming and attractiveness need exploration, like park leadership, community participation, and standards and benchmarks for participation.

• Park programming may be more important than facilities in attracting park users.

• Parks have the potential and capacity to do more to facilitate physical activity.
Number of Months Between End of Construction and Assessment

- Park 2: 8
- Park 4: 2
- Park 6: 14
- Park 8: 6
- Park 9: 6