Leveraging the Role of Parks as Activity-Promoting Elements of the Built Environment

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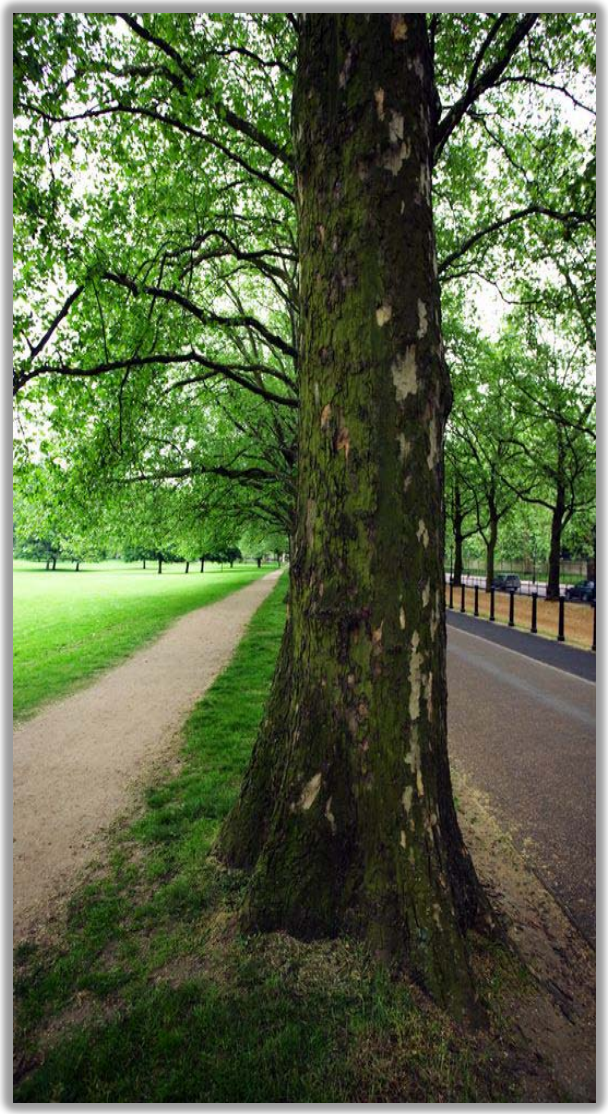
KDHE Built Environment Summit – October 19, 2010

Presentation Overview

- Benefits of parks to communities
- Overview of parks and physical activity research
  - Benefits of parks
  - Park proximity
  - Park awareness
  - Park characteristics
  - Physical activity levels in parks
  - Parks and environmental justice
- Tools to examine physical activity in your parks
  - Example: Kansas City Parks & Physical Activity Study
    - Observation
    - Visitor Surveys
    - Park Audit
- Discussion and Questions



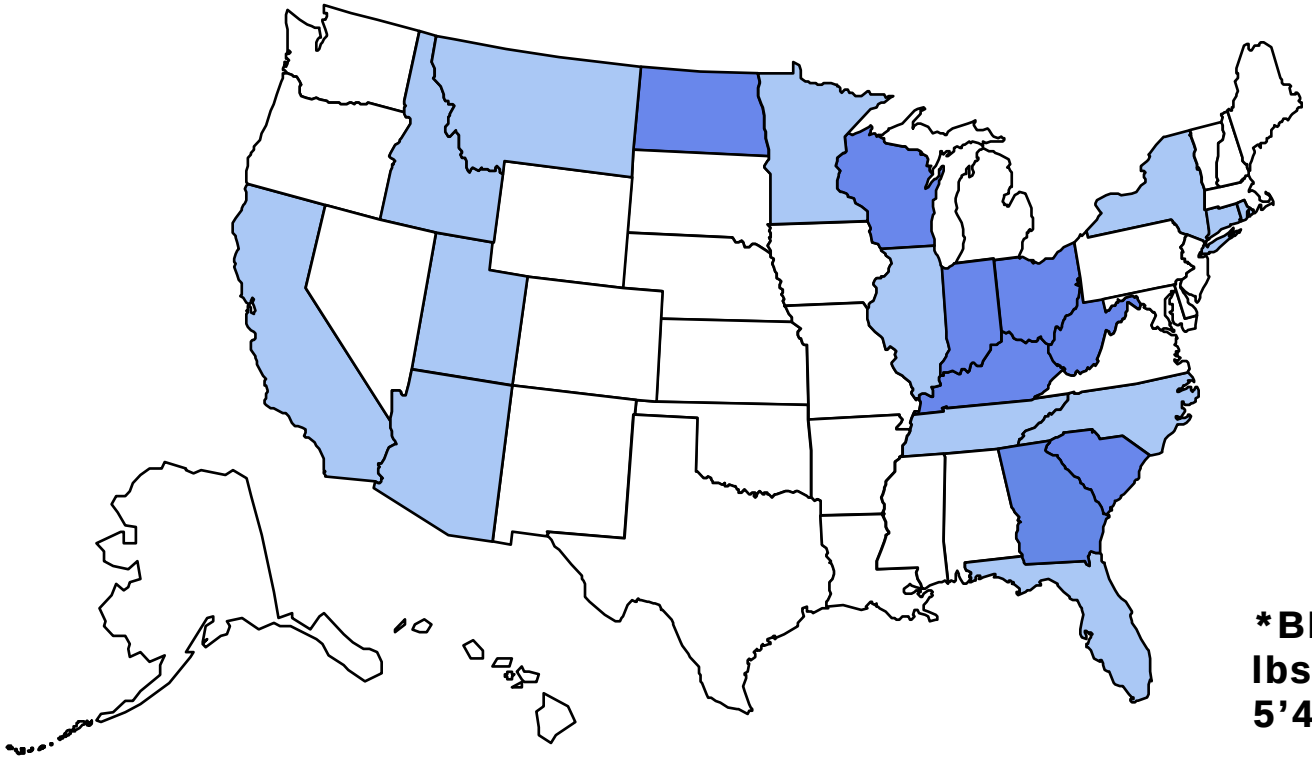
Some Broad-based Benefits of Parks

- Enhancing quality of life
- Attracting and retaining businesses
- Enhancing real estate values
- Protecting the environment
- Preventing youth crime/promoting youth development

- Facilitating community pride, connectedness, social capital
- Individual and community health – stress relief, spiritual restoration, reduced pollution, community connectedness, flood control, **physical activity**

Crompton, J.L. (2007). *Community benefits and repositioning: The keys to park and recreation's future viability.* Ashburn, VA: National Recreation and Park Association.

Obesity* Trends Among U.S. Adults, 1985



*BMI ≥30, or ~ 30 lbs. overweight for 5'4" person

No Data | <10% | 10%–14%

Source: Behavioral Risk Factor Surveillance System, CDC

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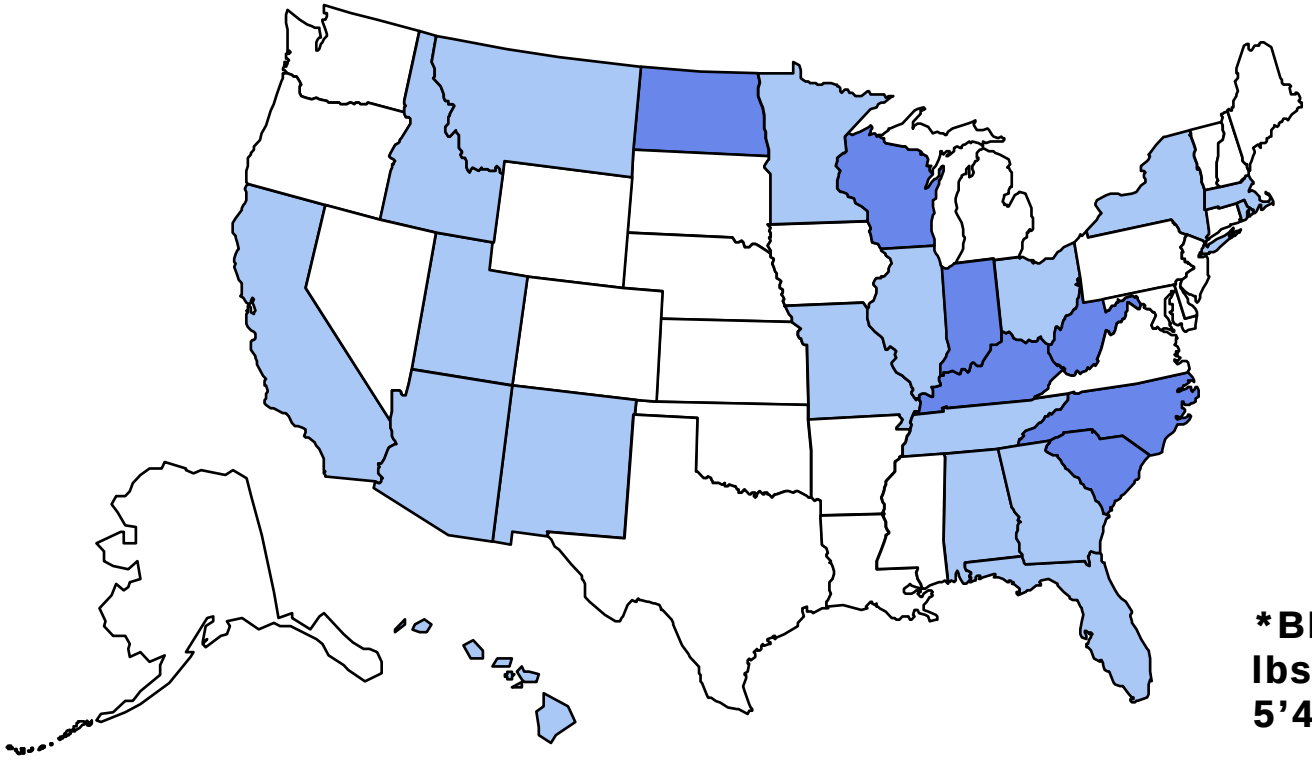

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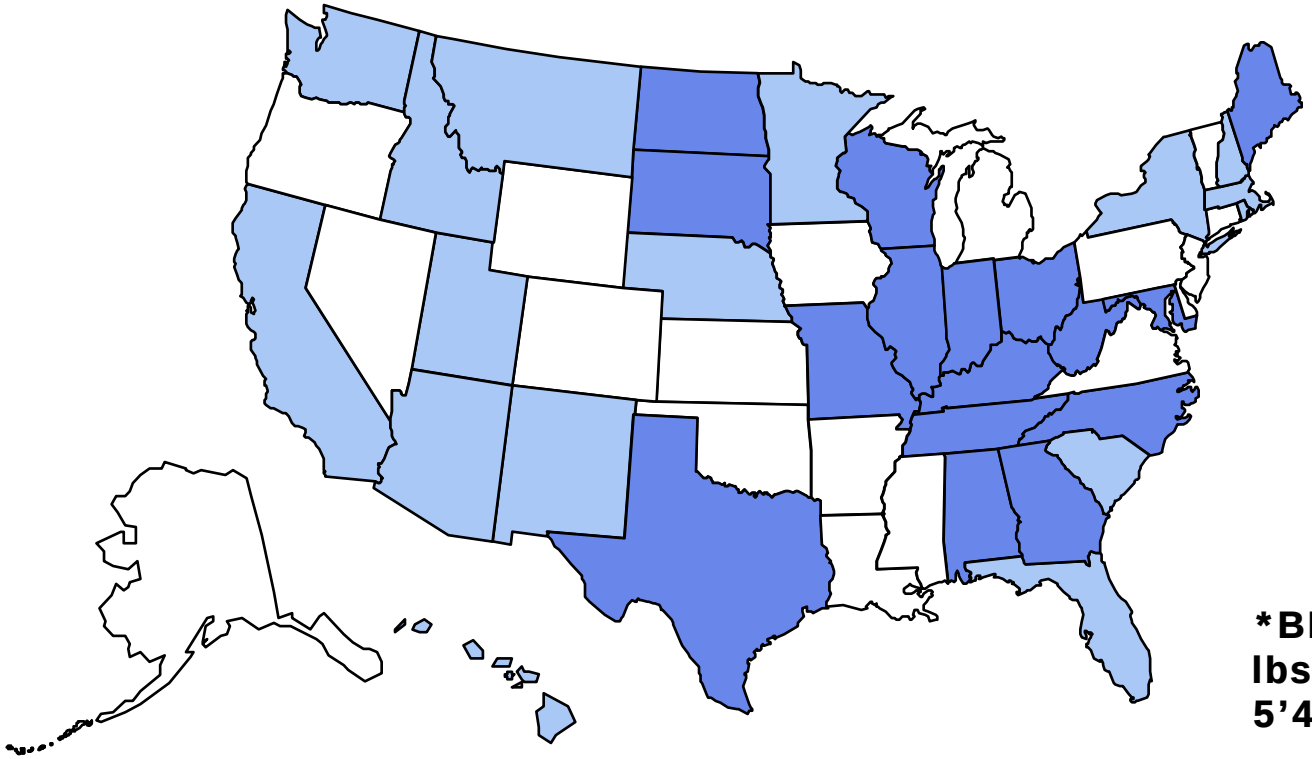

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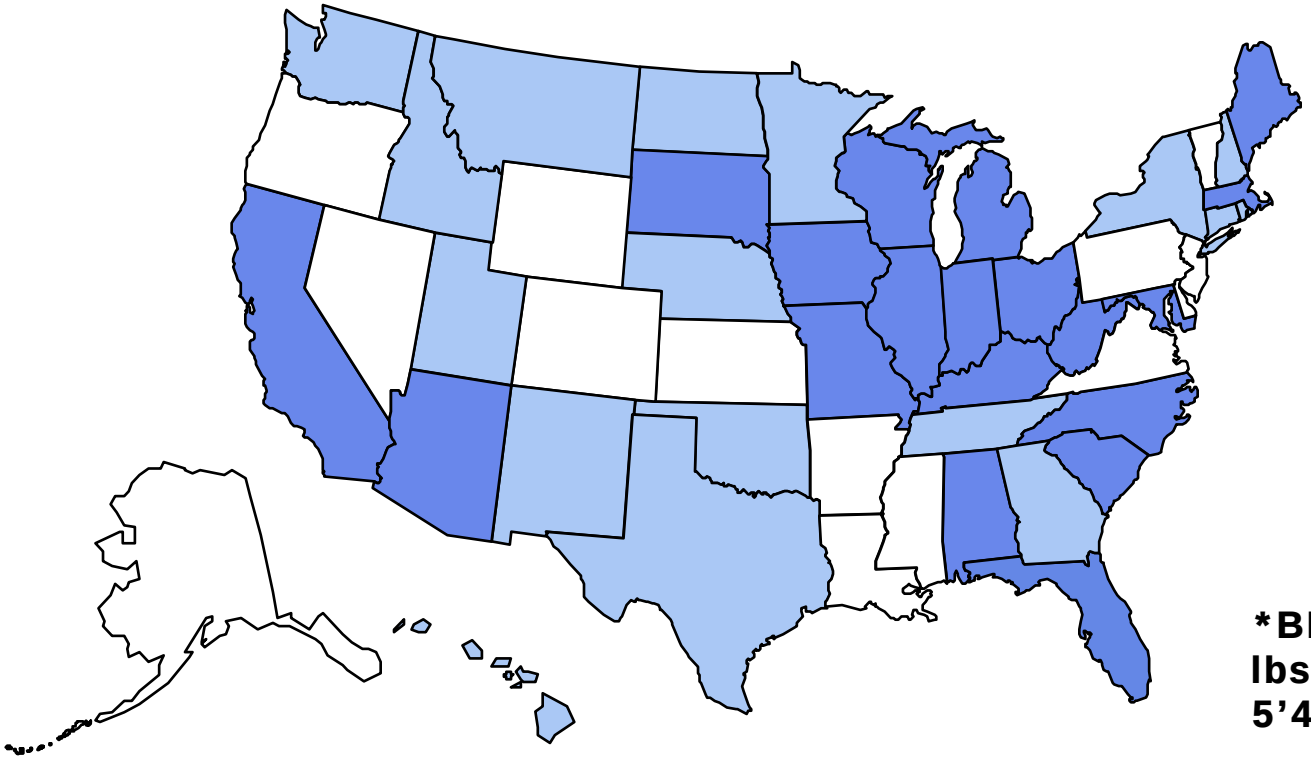

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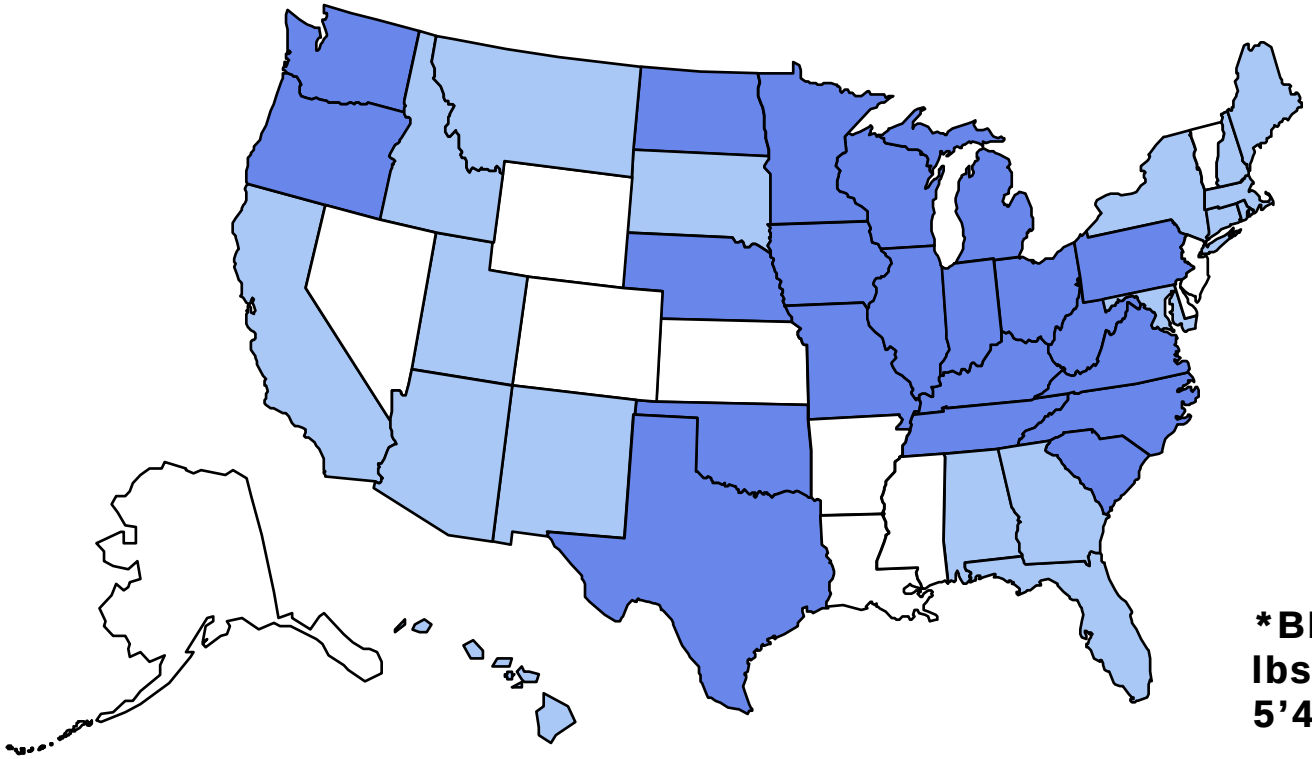

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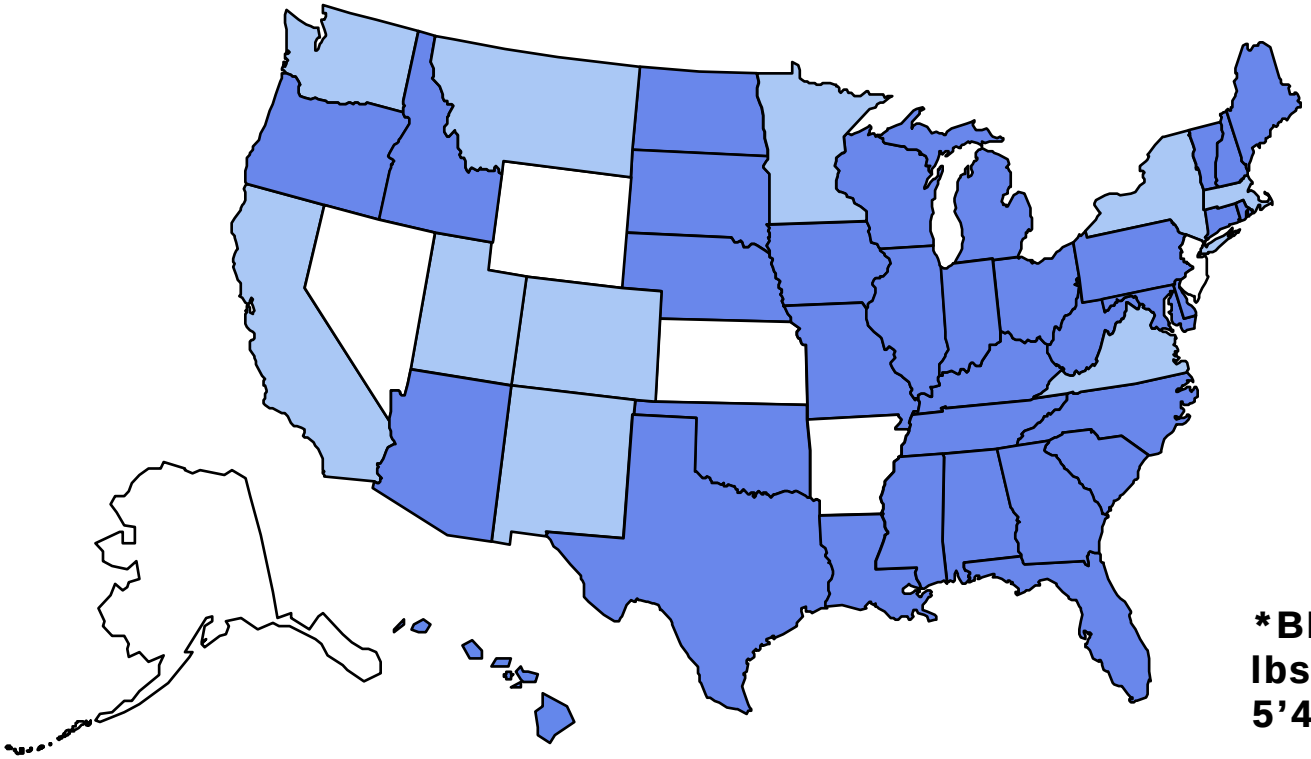

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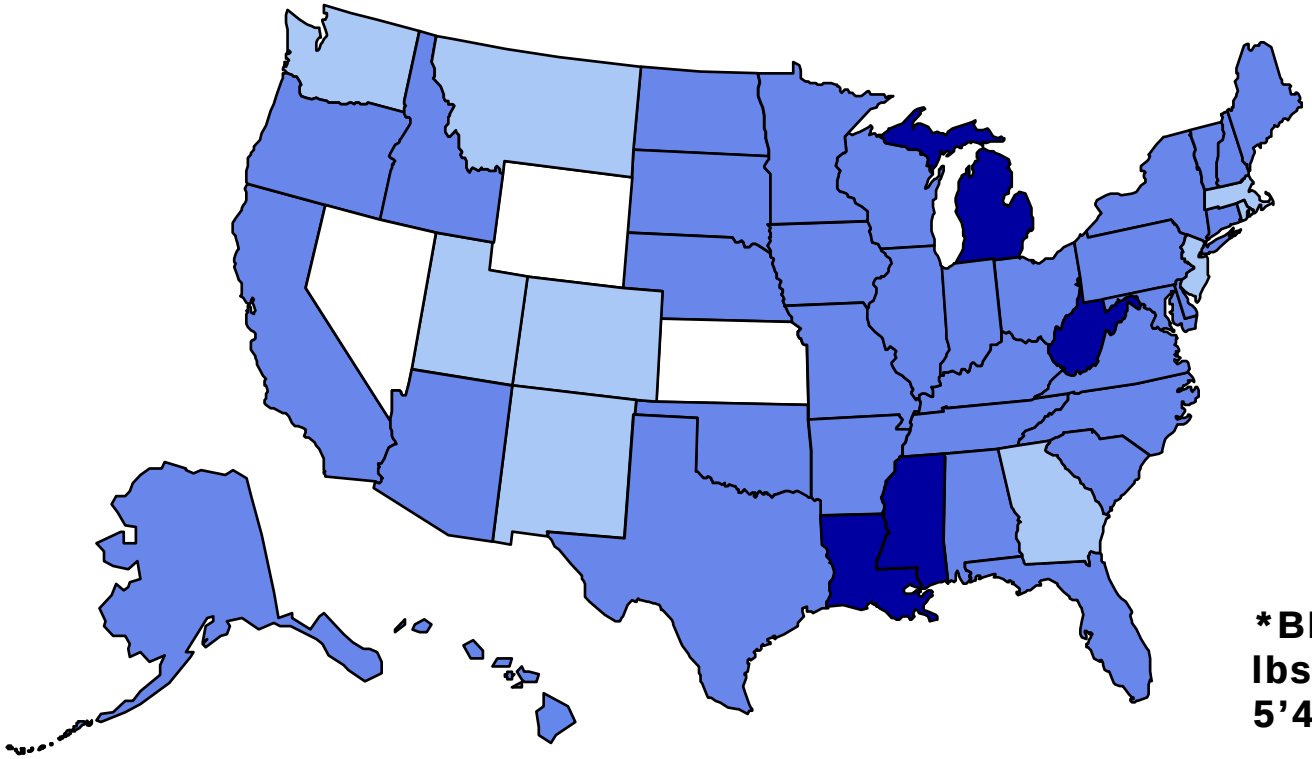
Obesity* Trends Among U.S. Adults, 1991



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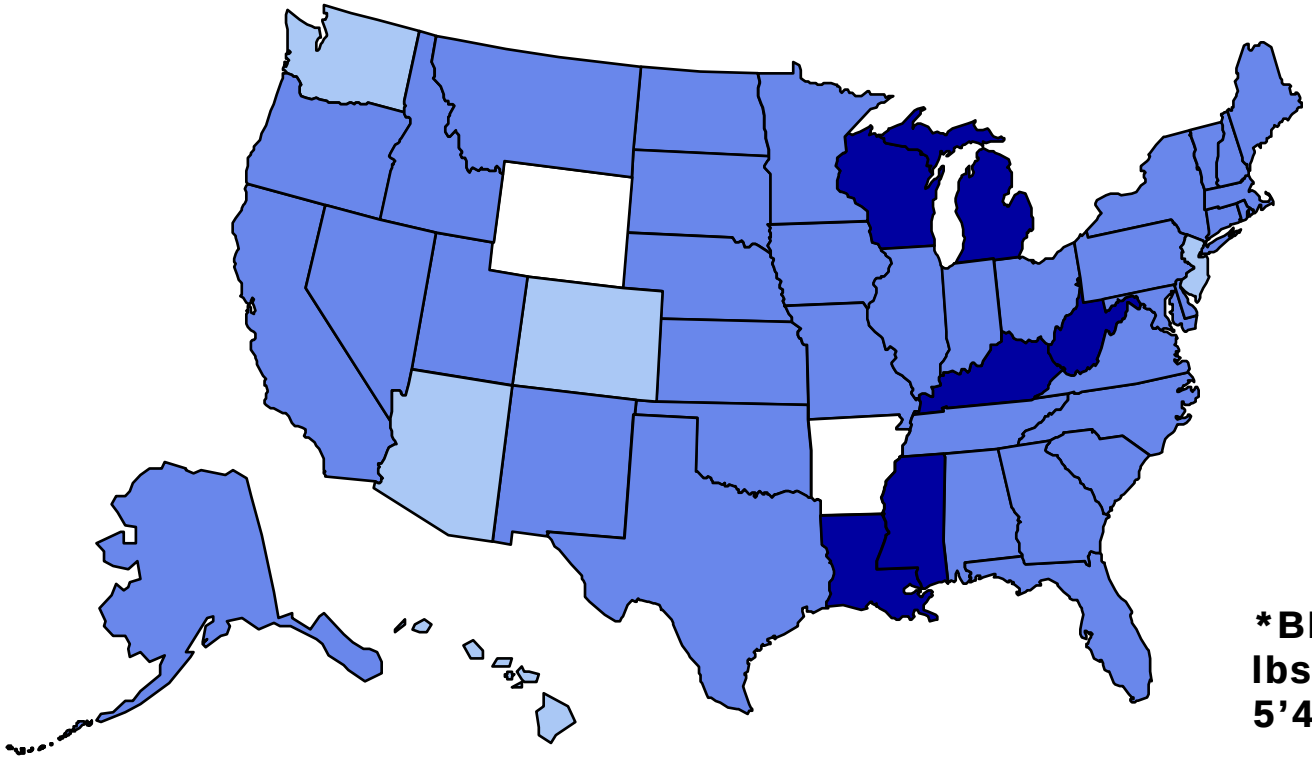

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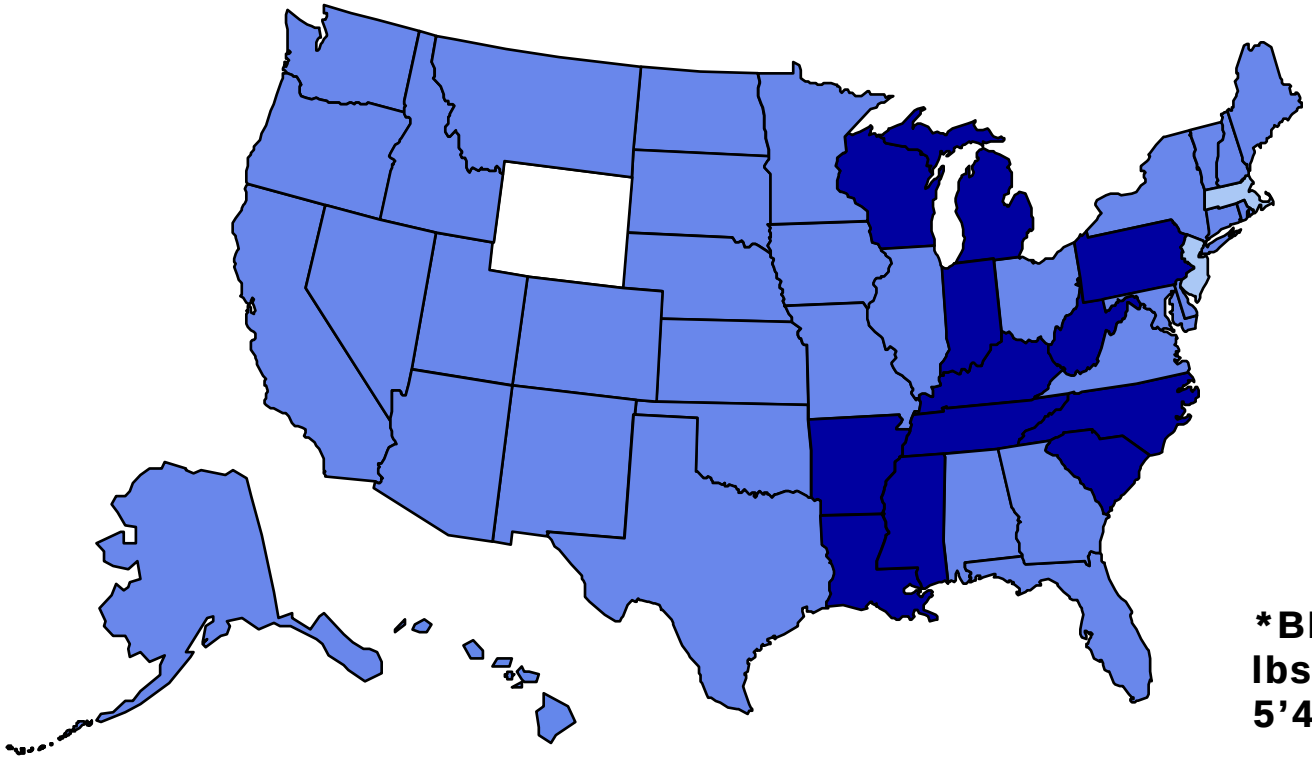

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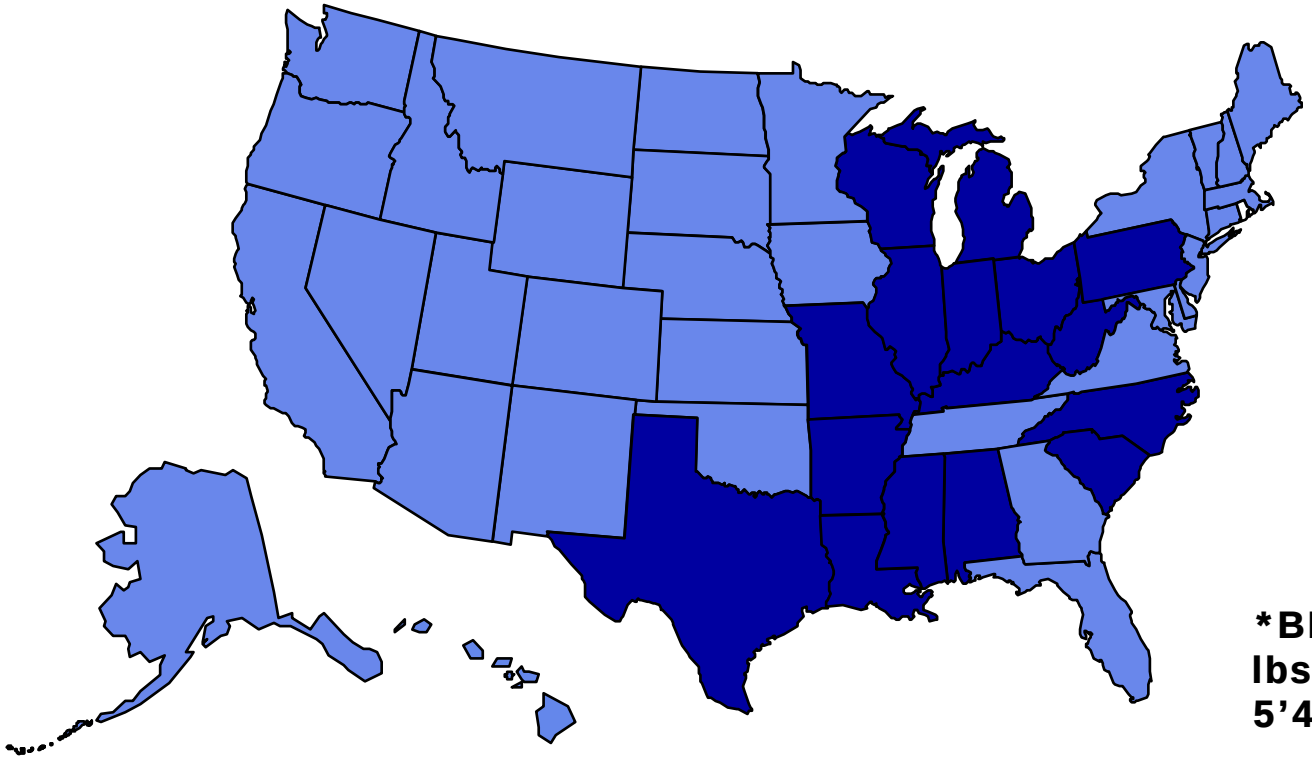

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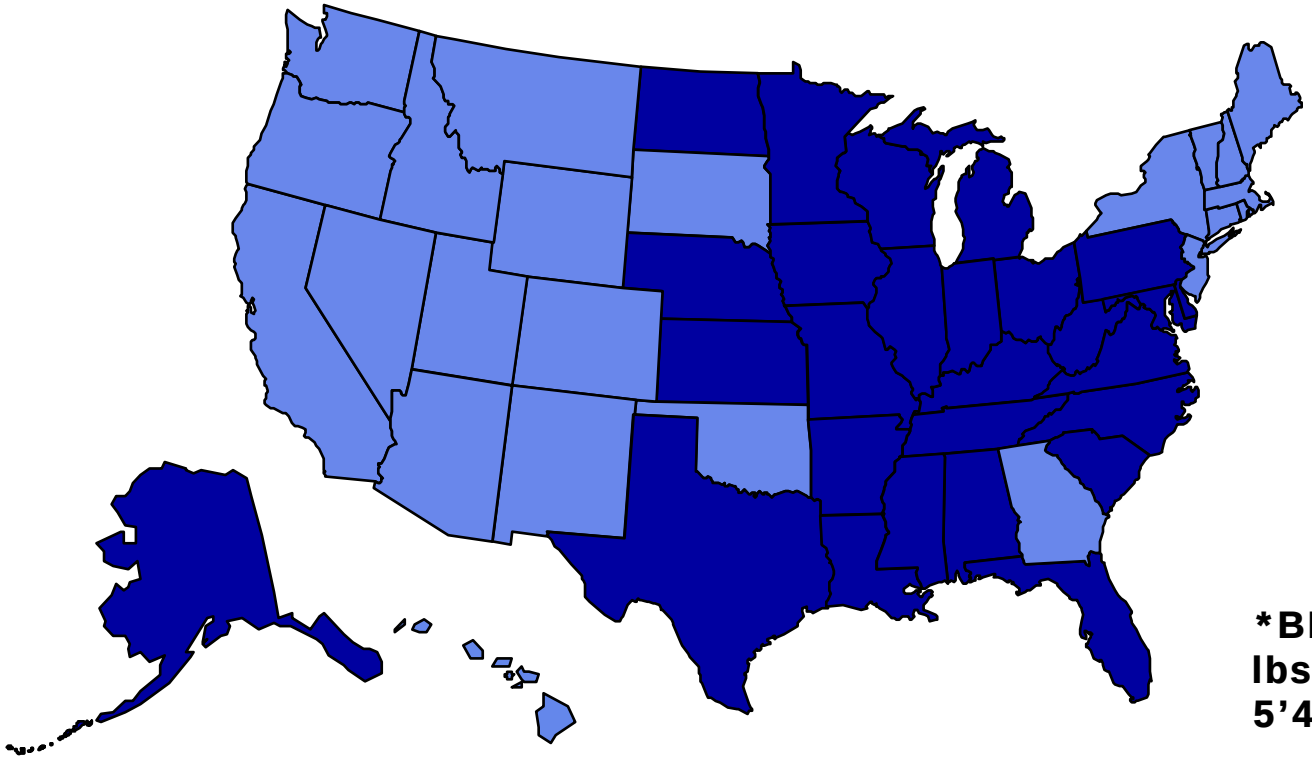
Source: Behavioral Risk Factor Surveillance System, CDC

Obesity* Trends Among U.S. Adults, 1995



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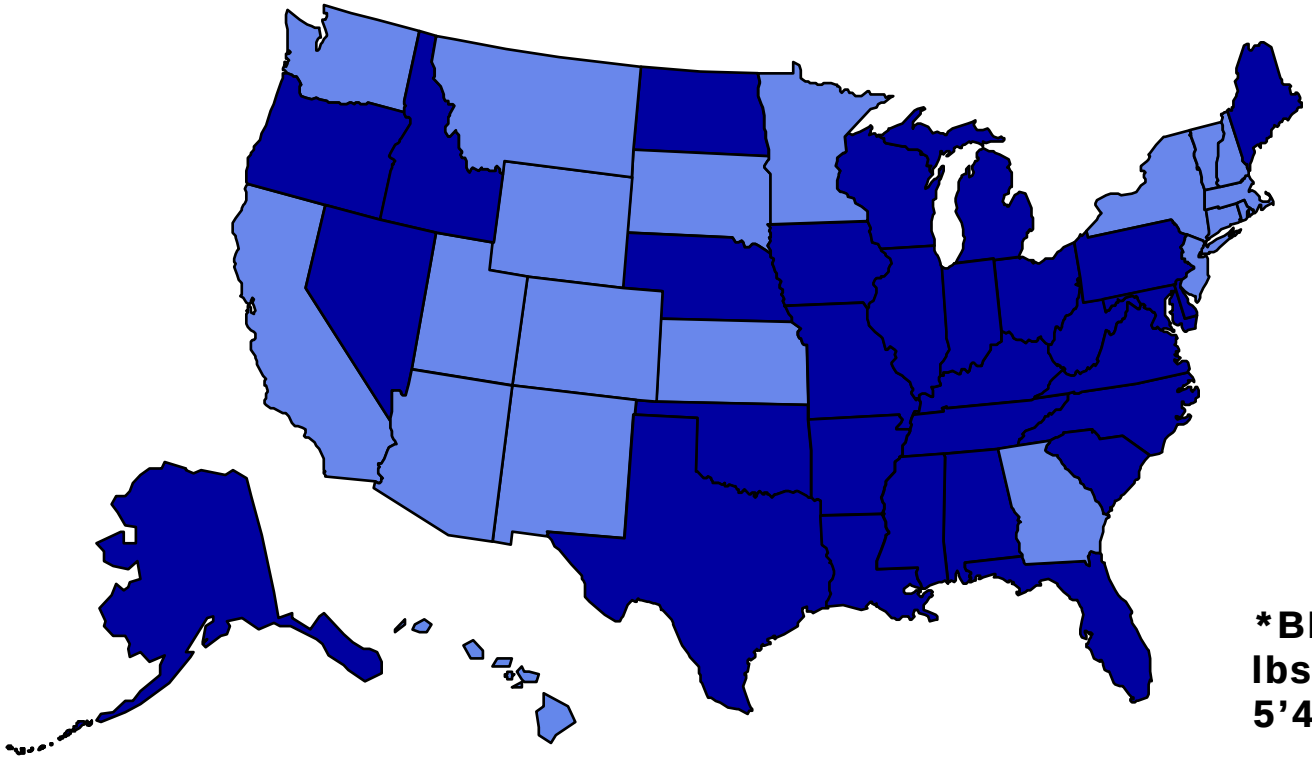
Obesity* Trends Among U.S. Adults, 1996



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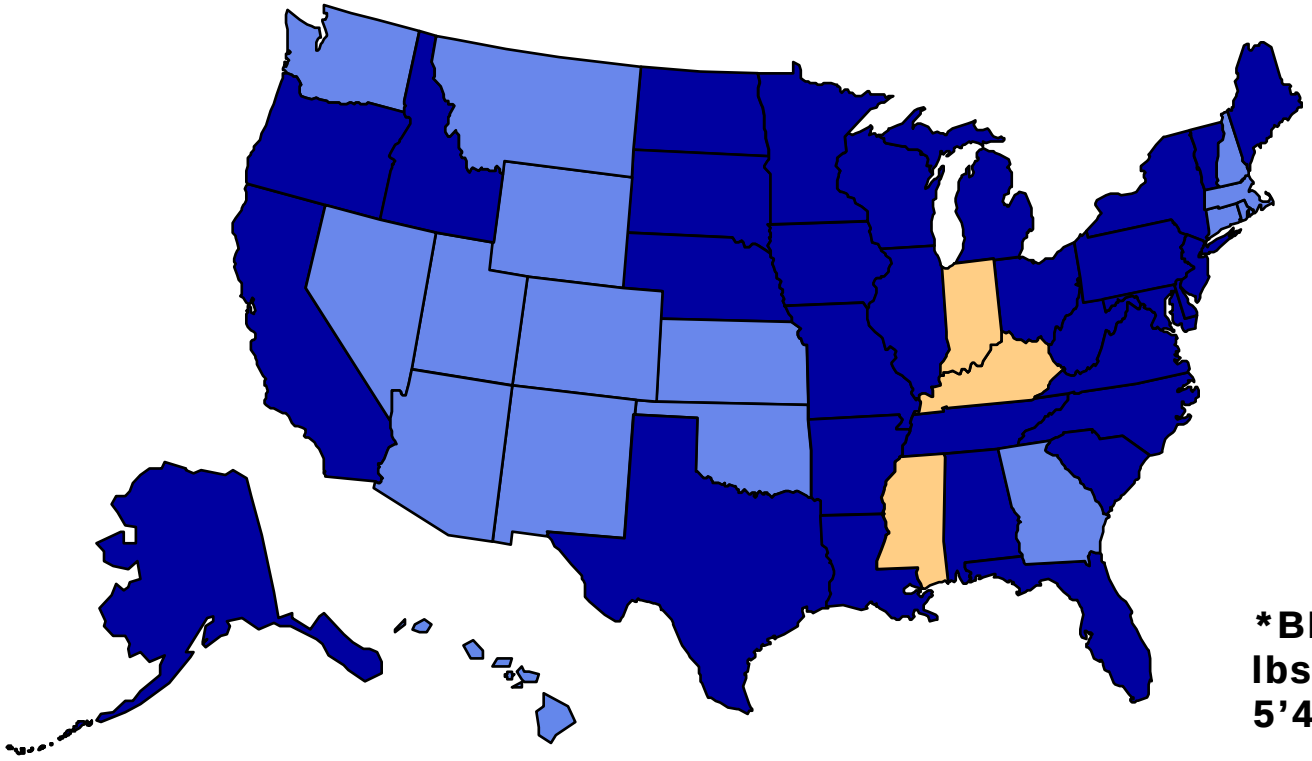

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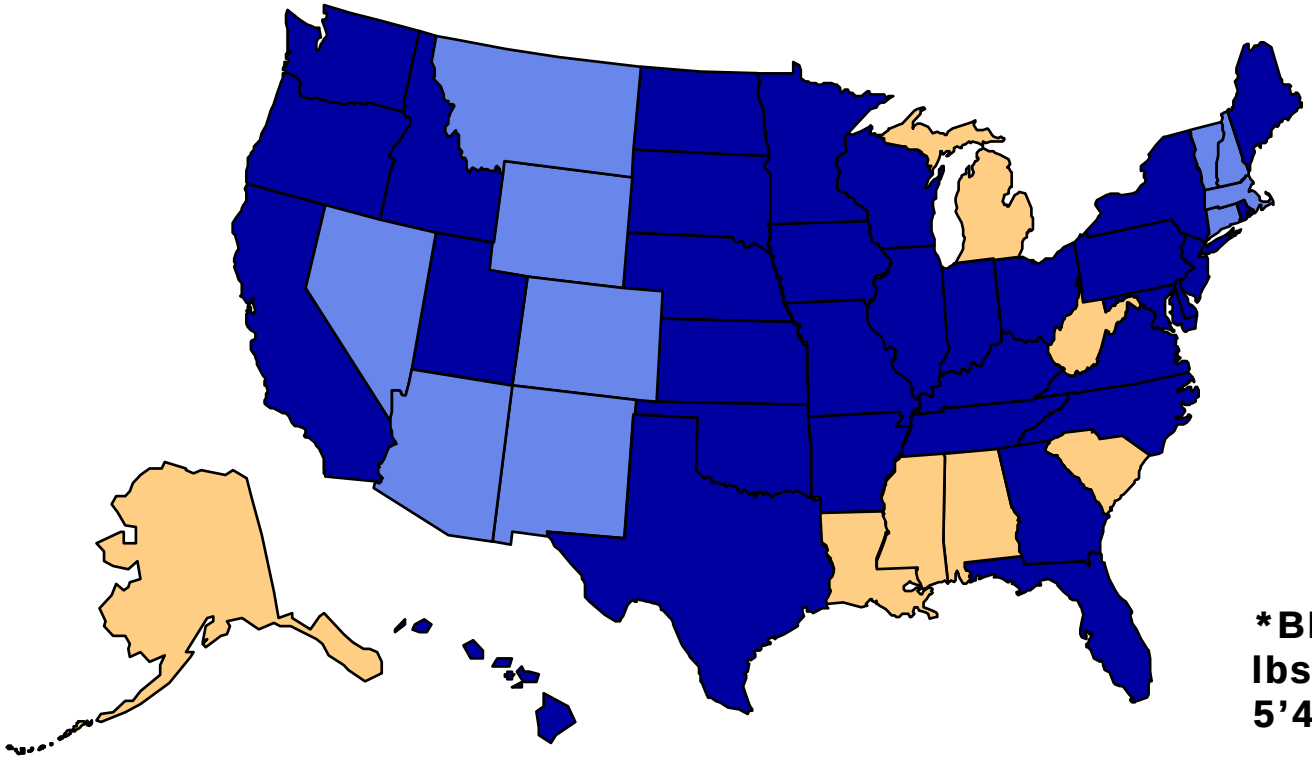
Source: Behavioral Risk Factor Surveillance System, CDC

Obesity* Trends Among U.S. Adults, 1998



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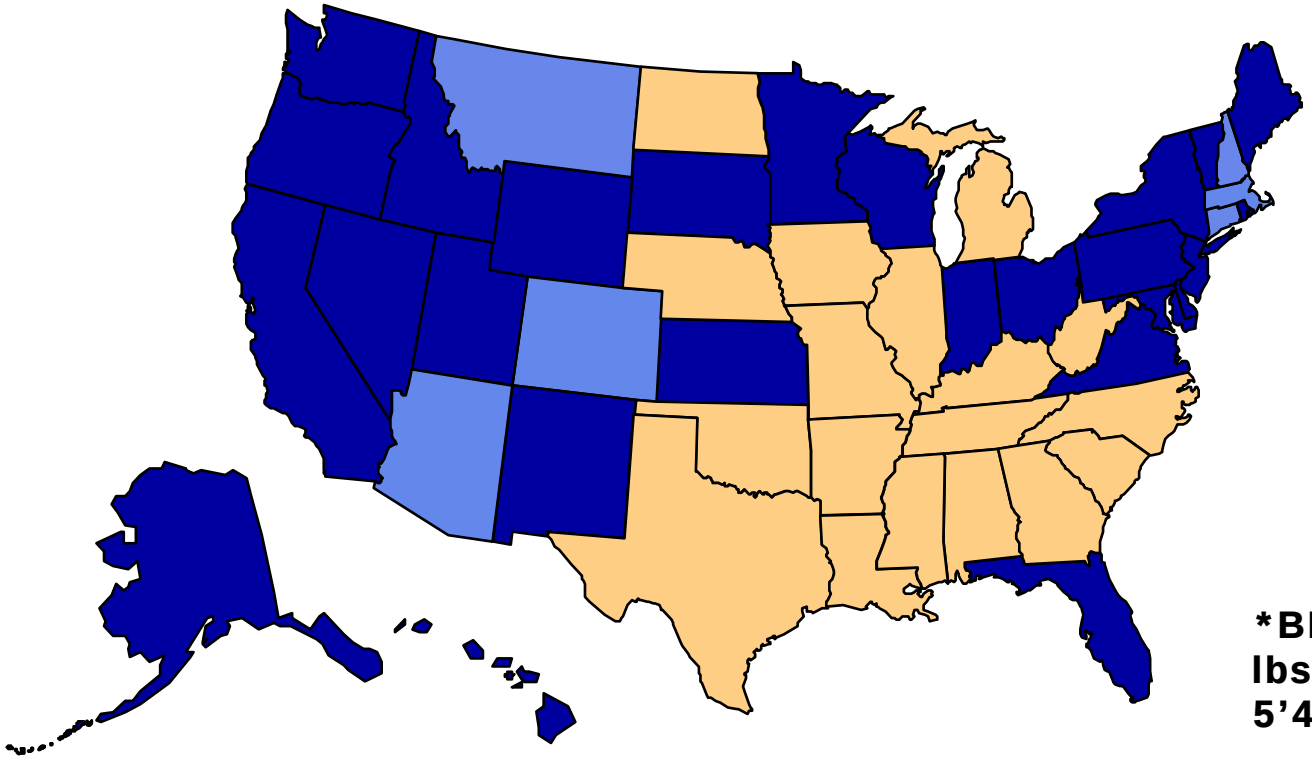

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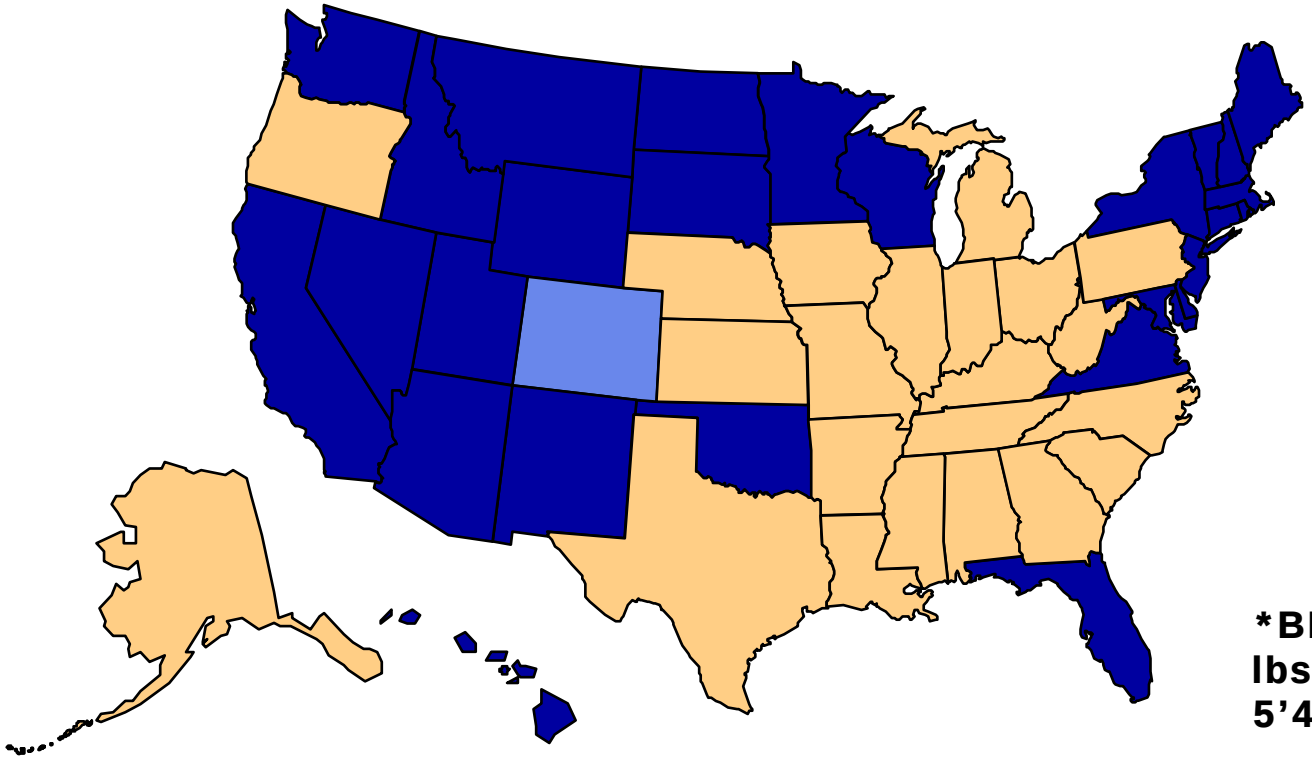
Source: Behavioral Risk Factor Surveillance System, CDC

Obesity* Trends Among U.S. Adults, 2000



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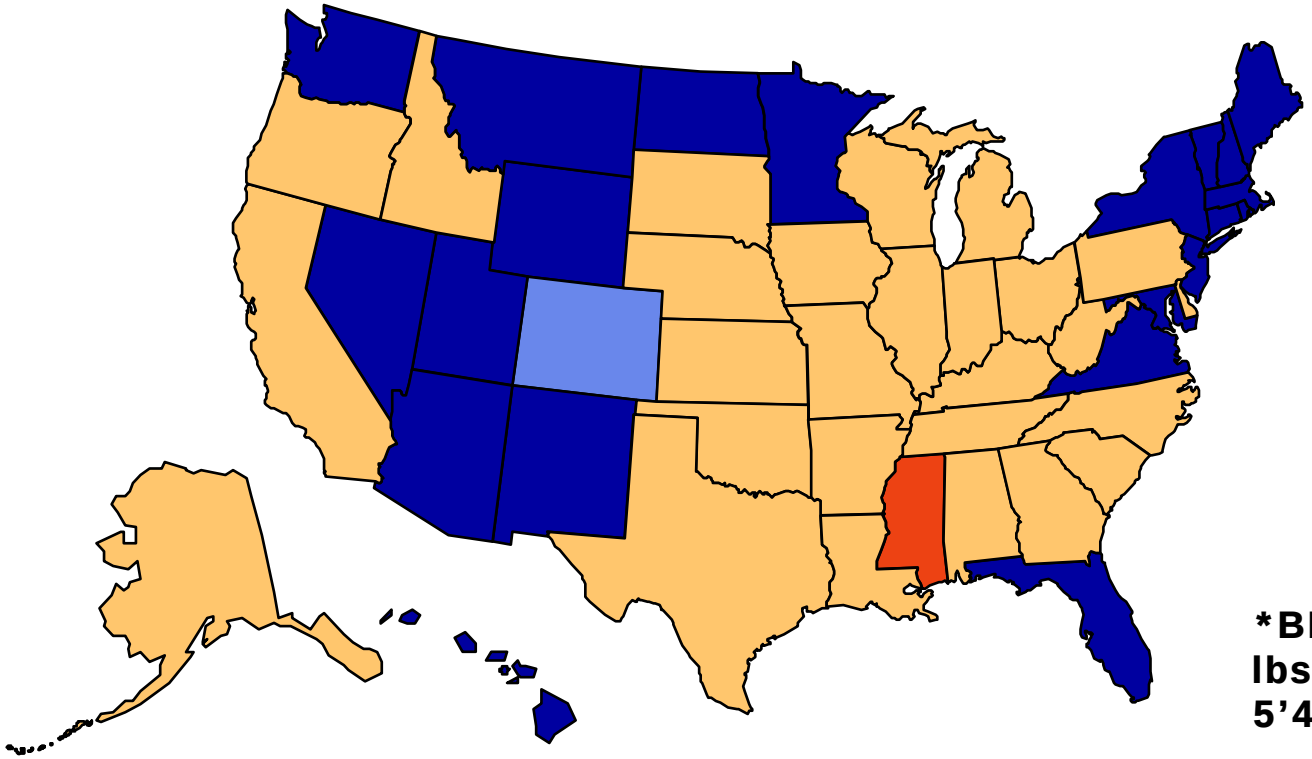
Source: Behavioral Risk Factor Surveillance System, CDC

Obesity* Trends Among U.S. Adults, 2001



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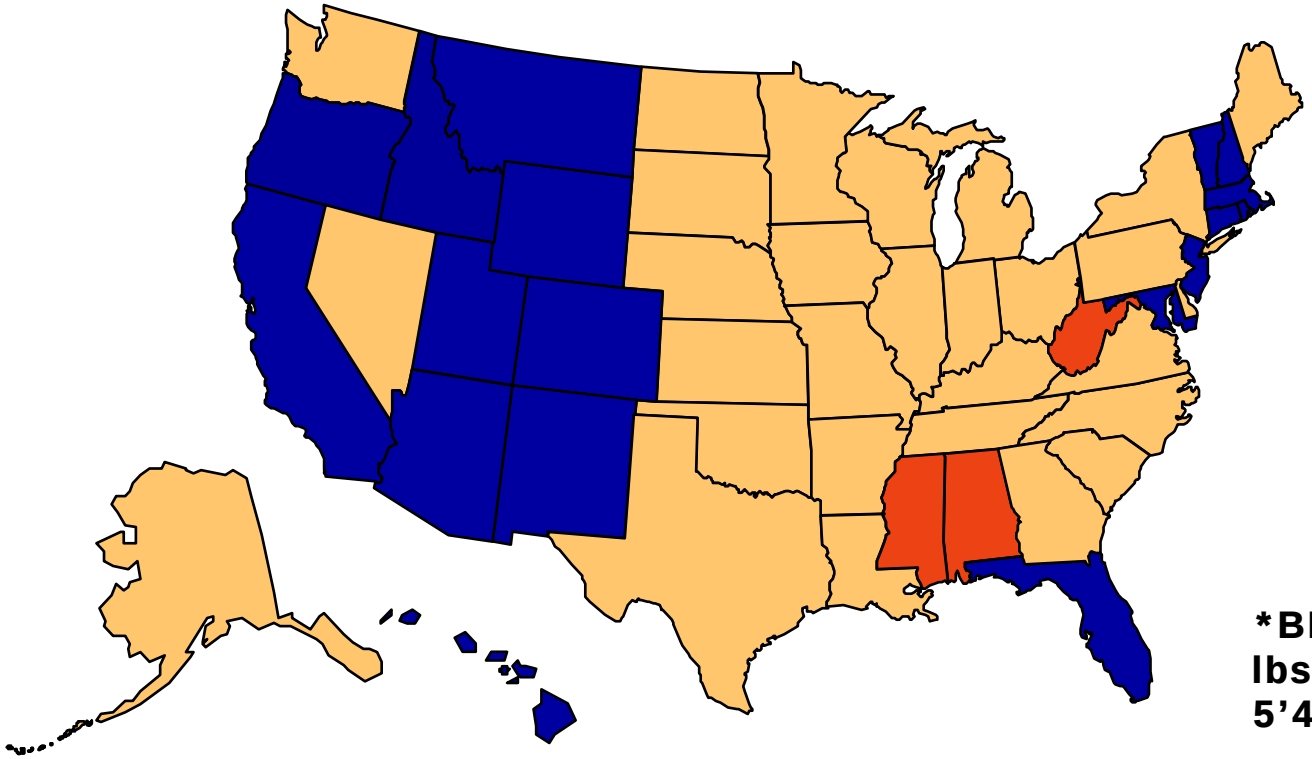
Source: Behavioral Risk Factor Surveillance System, CDC

Obesity* Trends Among U.S. Adults, 2002



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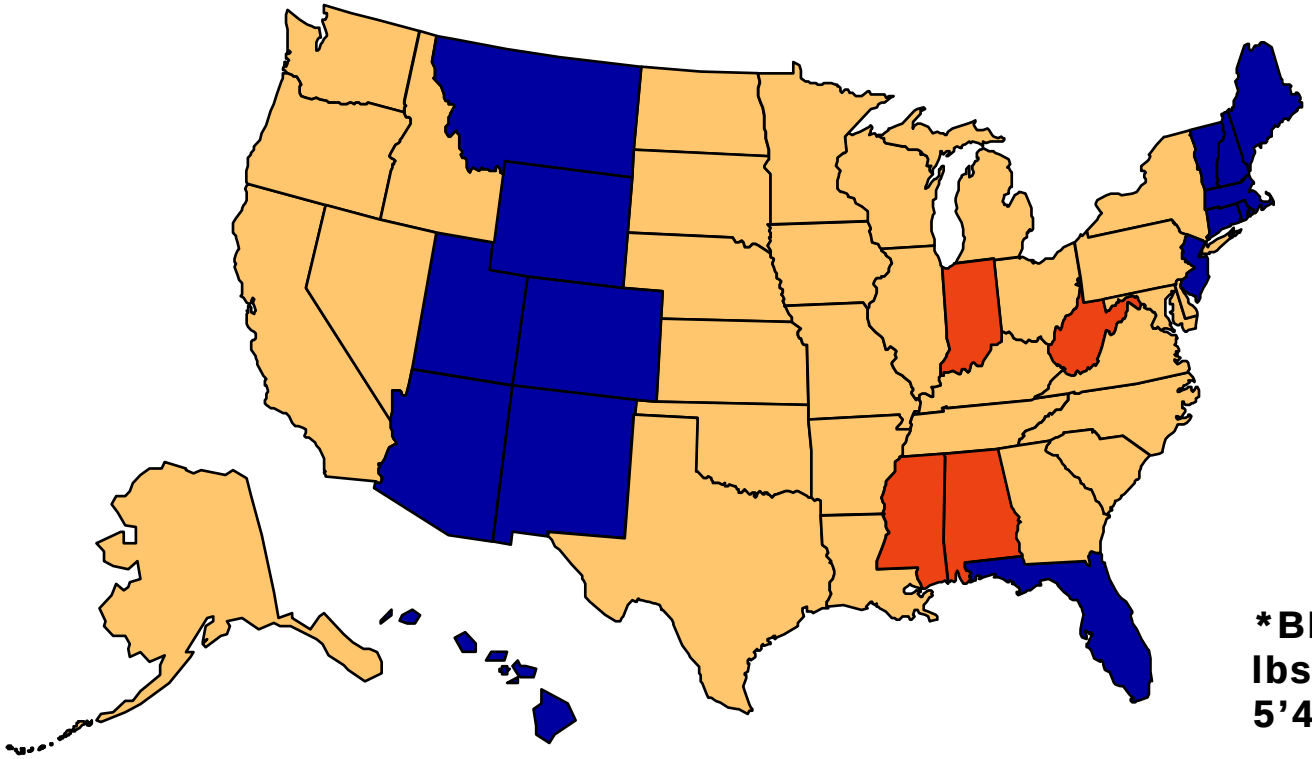
Source: Behavioral Risk Factor Surveillance System, CDC

Obesity* Trends Among U.S. Adults, 2003



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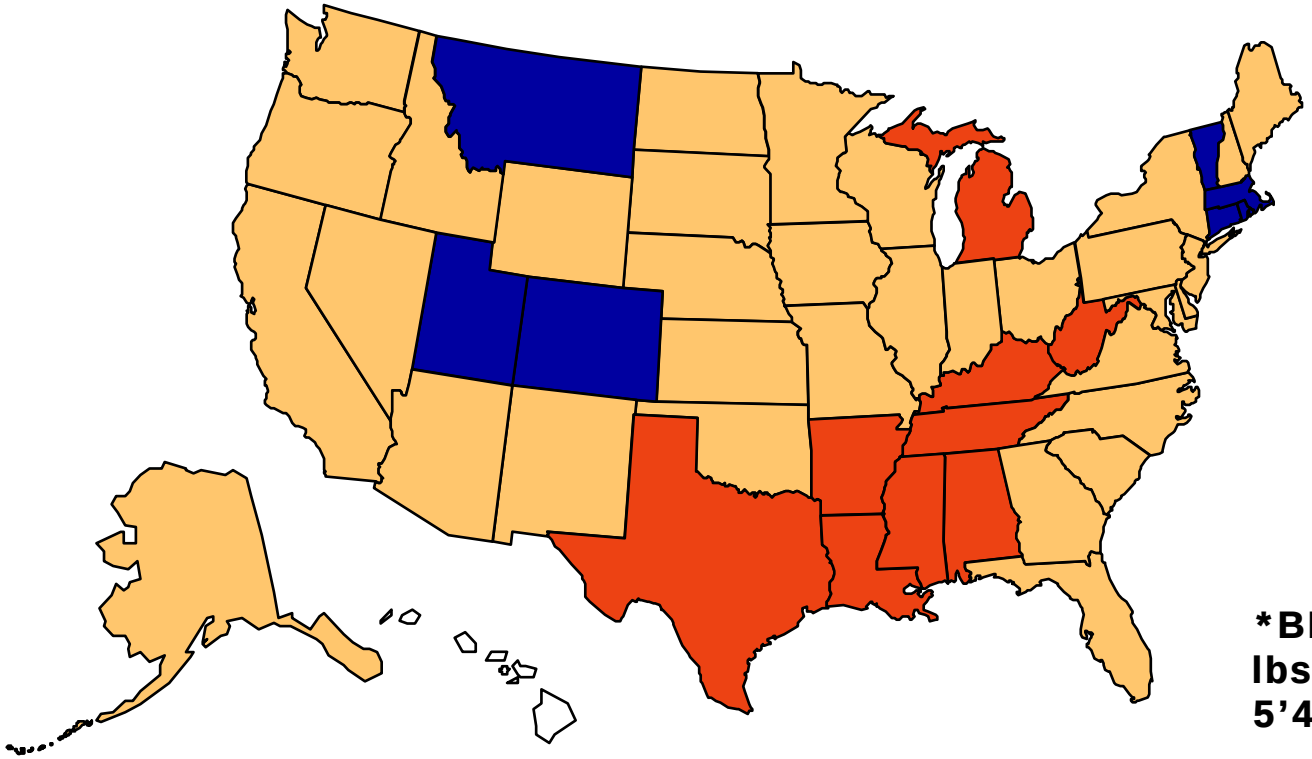
Source: Behavioral Risk Factor Surveillance System, CDC

Obesity* Trends Among U.S. Adults, 2004



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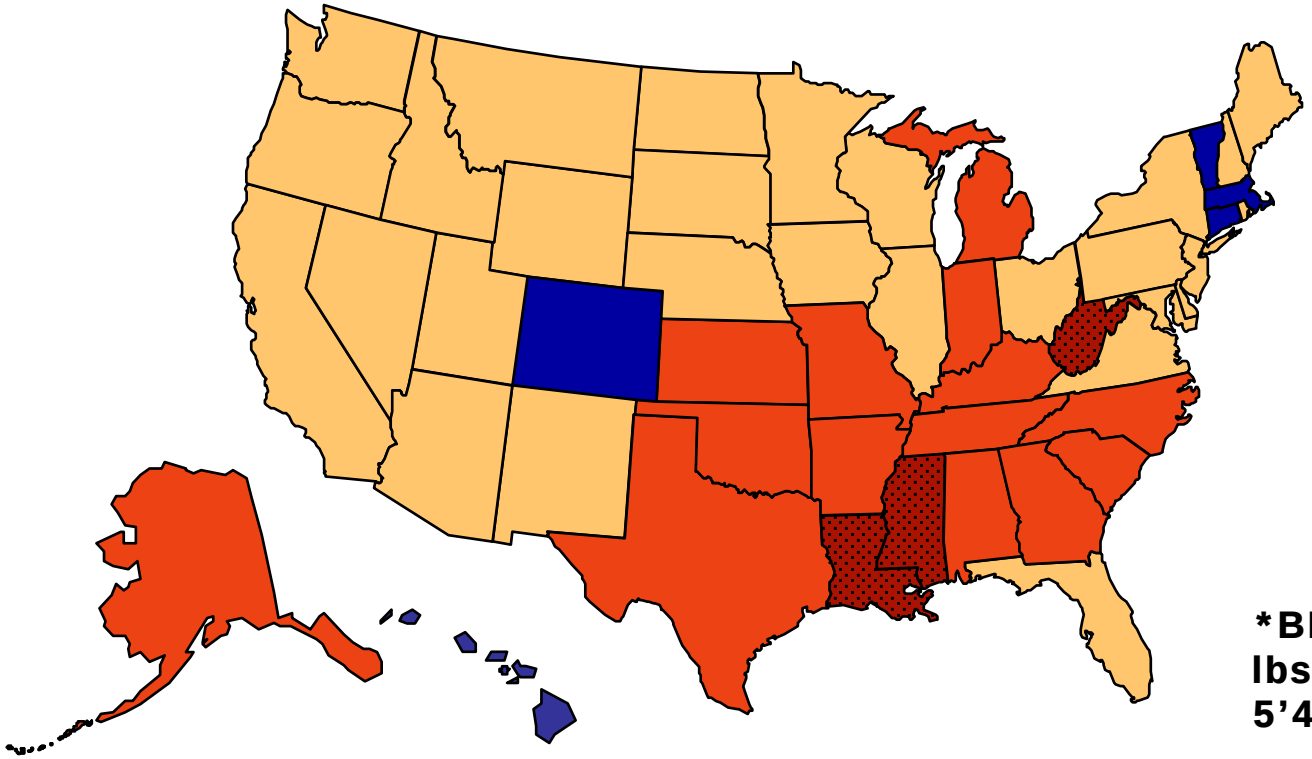

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No Data | <10% | 10%–14% | 15%–19% | 20%–24% | 25%–29% | ≥30%

Source: Behavioral Risk Factor Surveillance System, CDC

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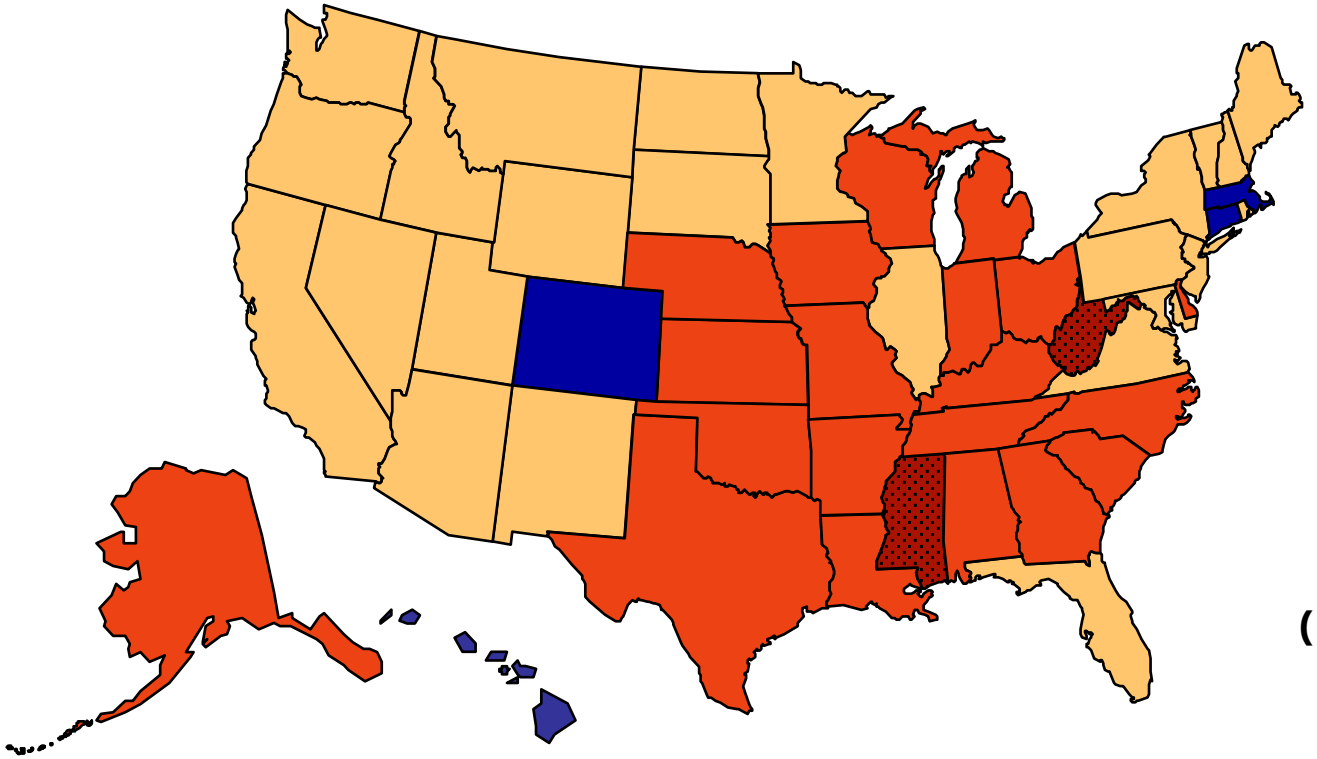


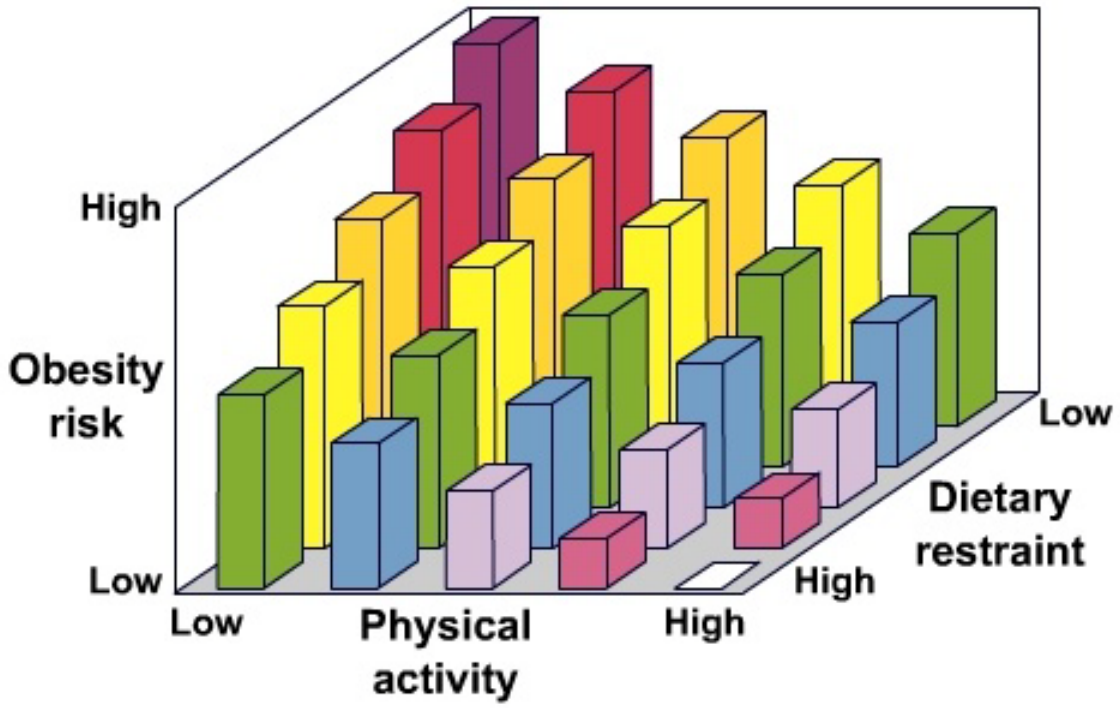
(*BMI ≥ 95%)

No Data | <10% | 10%–14% | 15%–19% | 20%–24% | 25%–29% | ≥30%

Source: Behavioral Risk Factor Surveillance System, CDC

Energy Balance and Obesity

- The energy imbalance that creates obesity (i.e., more calories consumed than expended) can be caused by physical inactivity, overeating, or both



Hill, J.O., & Peters, J.C. (1998). Environmental contributions to the obesity epidemic. *Science, 280*, 1371-1374.

Shifting the Discussion from Effect to Cause

Most common causes of death, United States, 2004*	Actual causes of death, United States, 2000**
1. Diseases of the heart	1. Tobacco
2. Malignant neoplasms (cancers)	2. Poor diet and physical inactivity
3. Cerebrovascular diseases (stroke)	3. Alcohol consumption
4. Chronic lower respiratory diseases	4. Microbial agents
5. Accidents (unintentional injuries)	5. Toxic agents
6. Diabetes mellitus	6. Motor vehicles
7. Alzheimer's disease	7. Firearms
8. Influenza and pneumonia	8. Sexual behavior
9. Nephritis, nephrotic syndrome, and nephrosis	9. Illicit drug use
10. Septicemia	

*Miniño, Heron, Smith, & Kochanek (2006).
**Mokdad, Marks, Stroup, & Greberding (2004 & 2005).

- Need to refocus the conversation away from diseases to their causes (e.g., physical inactivity) and the solutions to those causes (e.g., more/better parks)

Parks as Important Community Physical Activity Resources

- Most local and state governments have some form of agency that oversees public open space
- Increasing interest among researchers and practitioners in the field(s) of leisure studies and recreation management in how parks contribute to community health
- Some have argued that much of the gains in physical activity are likely to occur in people's leisure time
- Most adults (70%) in the U.S. live within walking distance of a park
- One survey of municipal officials (N=294) showed that developing a cohesive system of parks and trails was viewed as the most promising community obesity prevention strategy
- Parks provide important 'behavior settings' in communities for both social and physical activity among residents of all ages

Presentation Overview

- Benefits of parks to communities
- **Overview of parks and physical activity research**
  - **Benefits of parks**
  - **Park proximity**
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  - **Park characteristics**
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- Tools to examine physical activity in your parks
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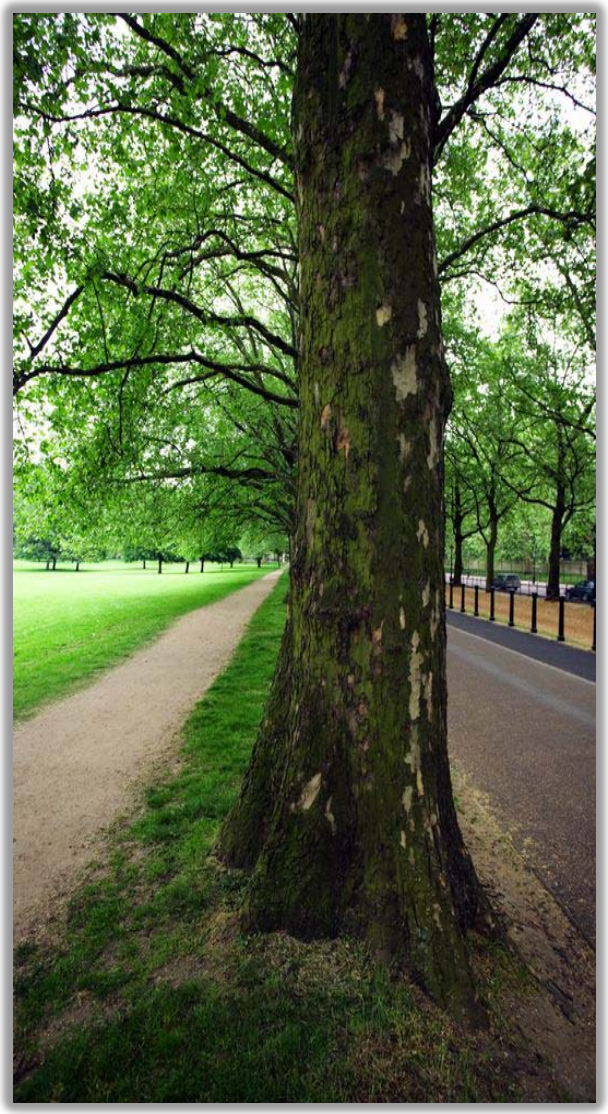
- Discussion and Questions



What does the research say about parks and physical activity?

- Do people living closer to parks seem to be more active?
- Are park features just as important as park proximity?
- How aware are people of their neighborhood parks?
- What proportion of park users are active during their visits?
- Are parks equitably distributed in communities?

Park Proximity and Physical Activity

- Do people living closer to parks seem to be more active?
- If so, is this true for all ages?

Parks and Recreation and Physical Activity: A Review of the Literature

- **Primarily positive associations** 21/50 (42%)
- **Mixed (some positive) associations** 19/50 (38%)
- **Mostly non-significant associations** 10/50 (20%)

Type of Setting	Total N	Positive Association	Mixed Association	No Association
Trails	17	10	7	
Parks	13	5	4	4
Open space	7	3	3	1
Rec centers	7	3	1	3
Exercise facilities	4	1	2	1
Sports facilities	3		2	1
Swimming pools	3	1		2
Golf courses	3	2	1	
Lake/beach/coast	3	3		

Kaczynski, A.T., & Henderson, K.A. (2007). *Leisure Sciences, 29*(4), 315-354.
Kaczynski, A.T., & Henderson, K.A. (2008). *Journal of Physical Activity and Health, 5(4)*.

Park Proximity and Neighborhood-Based and Park-Based Physical Activity

- What's most strongly related to neighborhood and park-based physical activity among adults?
  - Distance to the closest park?
  - Number of total parks within 1 km (0.6 miles)?
  - Total area of park land within 1 km?
- Distance to closest park not related to neighborhood or park-based PA
- Number and total area of parks within 1 km related to greater park-based PA
  - Especially true among women and older and younger adults

	Total Moderate to Strenuous PA (none vs. 150+ mins.)		**Neighborhood** Moderate to Strenuous PA (none vs. 150+ mins.)		**Park-Based** Moderate to Strenuous PA (none vs. some)	
Park Variable	**B**	**95% CI**	**B**	**95% CI**	**B**	**95% CI**
# of parks within 1 km	1.06	(.84,1.42)	**1.17***	**(1.01,1.34)**	**1.15***	**(1.01,1.28)**
Park **area** within 1 km	**1.02***	**(1.01,1.03)**	1.00	(.99,1.01)	**1.03***	**(1.02,1.04)**
Distance to closest park	0.96	(.71,1.32)	1.05	(.86,1.32)	1.07	(.86,1.33)

Kaczynski, A. T., Potwarka, L. R., Smale, B., & Havitz, M. E. (2009). Association of parkland proximity with neighborhood and park-based physical activity: Variations by gender and age. *Leisure Sciences, 31*(2), 174-191.

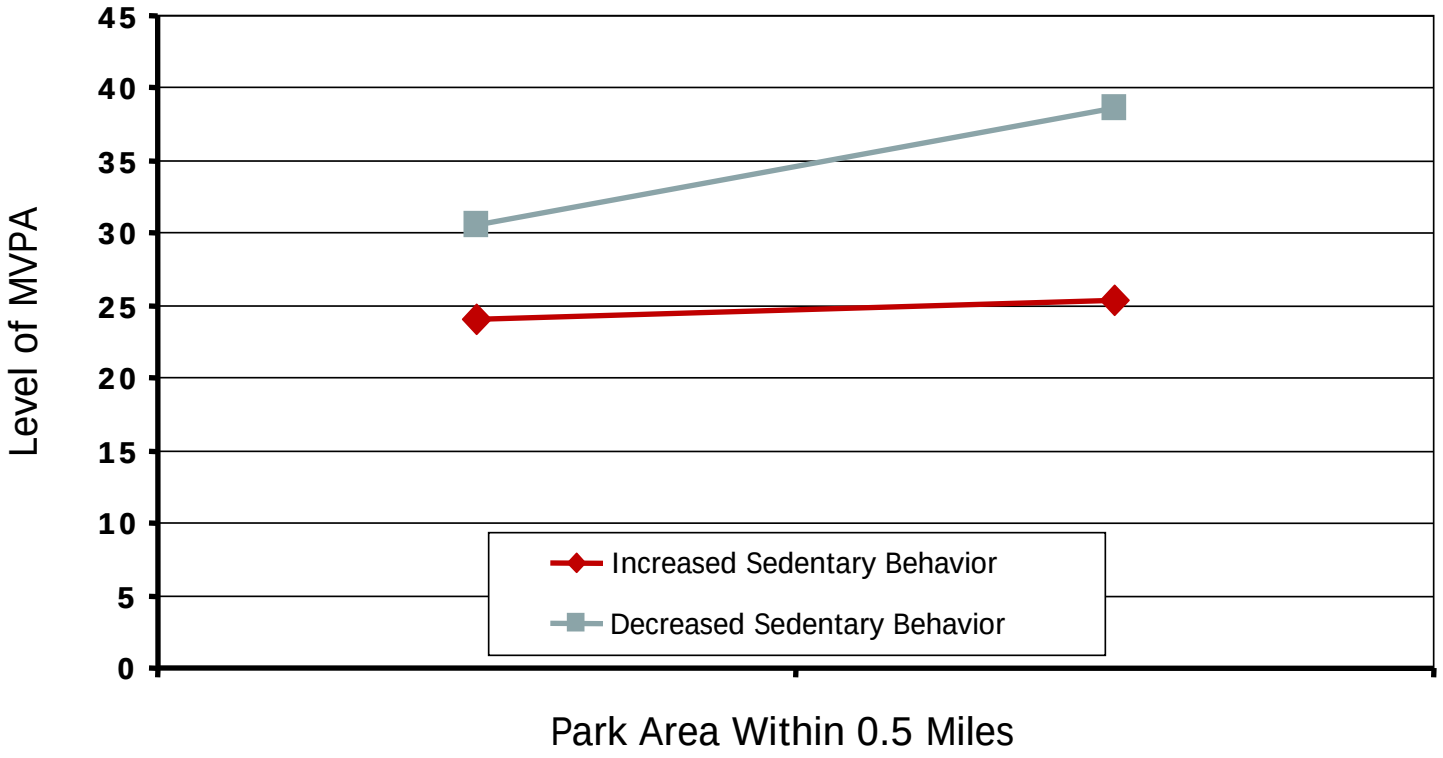
Park Area and Reducing Sedentary Behavior Among Youth

- Intervention study with fifty-eight sedentary (15-25 hrs/wk of TV/video) 8-15 year olds in Buffalo/Niagara Falls
- Paid children's families to maintain, increase then decrease sedentary behaviors over the course of a 3-week period
- Wore accelerometers for 3 days to track physical activity during each stage (baseline, increased sedentary, decreased sedentary)
- Calculated park area with half-mile radius of child's home

Epstein, L.H., Raja, S., Gold, S.S., Paluch, R.A., Pak, Y., & Roemmich, J.N. (2006). Reducing sedentary behavior: The relationship between park area and the physical activity of youth. *Psychological Science, 17*(8), 654-659.

Park Area and Reducing Sedentary Behavior Among Youth (continued)

- During the decreased sedentary phase, having a greater amount of nearby park area 'increased the increase' in physical activity



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Neighborhood Green Space and Neighborhood Walking Among Seniors

- Older adults (65-94 years) from 56 districts in Portland, Oregon
- Total acres of green space for recreation per neighborhood and within 0.5 miles of each study participant, and total number of parks, paths, trails per neighborhood acre
- Self-report measure of neighborhood walking
- At both neighborhood and individual resident levels of analysis, area of green and open space and the number of parks, paths, and trails was significantly related to increased neighborhood walking

Fisher, K. J., Li, F. Z., Michael, Y., & Cleveland, M. (2004). Neighborhood-level influences on physical activity among older adults: A multilevel analysis. *Journal of Aging and Physical Activity, 12*(1), 45-63.

Li, F. Z., Fisher, K. J., Brownson, R. C., & Bosworth, M. (2005). Multilevel modeling of built environment characteristics related to neighbourhood walking activity in older adults. *Journal of Epidemiology & Community Health, 59*(7), 558-564.

Park Characteristics and Physical Activity

- Are park features just as (or more?) important as park proximity?
- What features of parks or park areas are associated with greater physical activity?

Park Size, Distance, Features and Physical Activity

Park Characteristic	Unadjusted Odds Ratios for Predicting Any Physical Activity in the Park		Adjusted Odds Ratios for Predicting Any Physical Activity in the Park	
	B	95% CI	B	95% CI
Size	1.82	(0.90, 3.66)		
Number of features	1.43	(1.13, 1.76)	1.45	(1.09, 1.82)
Average distance to park	1.02	(0.83, 1.29)		

- Number of features the only significant characteristic for predicting use of park for PA
- Facilities more important than amenities
- Trails the most important facility (OR=26.43)

Kaczynski, A.T., Potwarka, L. R., & Saelens, B. E. (2008). Association of park size, distance, and features with physical activity in neighborhood parks. *American Journal of Public Health, 98*(8), 1451-1456.

Park Space and Facilities and Childhood Obesity

- Is proximity to park space and/or particular facilities related to healthy weight status (vs. overweight) among children?
- Three park space variables: number of parks within 1 km, total park area within 1 km, distance to closest park
- Availability of 13 park facilities in a park within 1 km from home
- None of three park space variables related to being a healthy weight status
- Children living within 1 km of parks with a playground five times more likely to be a healthy weight than those not living near a park with a playground
- Parents will travel over 4 km to find a park with particular features (Tucker et al., 2007)
- Alterations/renovations to playgrounds can promote more PA (Stratton, 2005; Colabianchi et al., 2008)

Potwarka, L. R., Kaczynski, A. T., & Flack, A. (2008). Places to play: Association of park space and facilities with healthy weight status among children. *Journal of Community Health, 33*, 344-350.

Park Awareness and Physical Activity

- How aware are people of their neighborhood parks?
- What factors increase awareness of neighborhood parks?

How aware are people of their neighborhood parks?

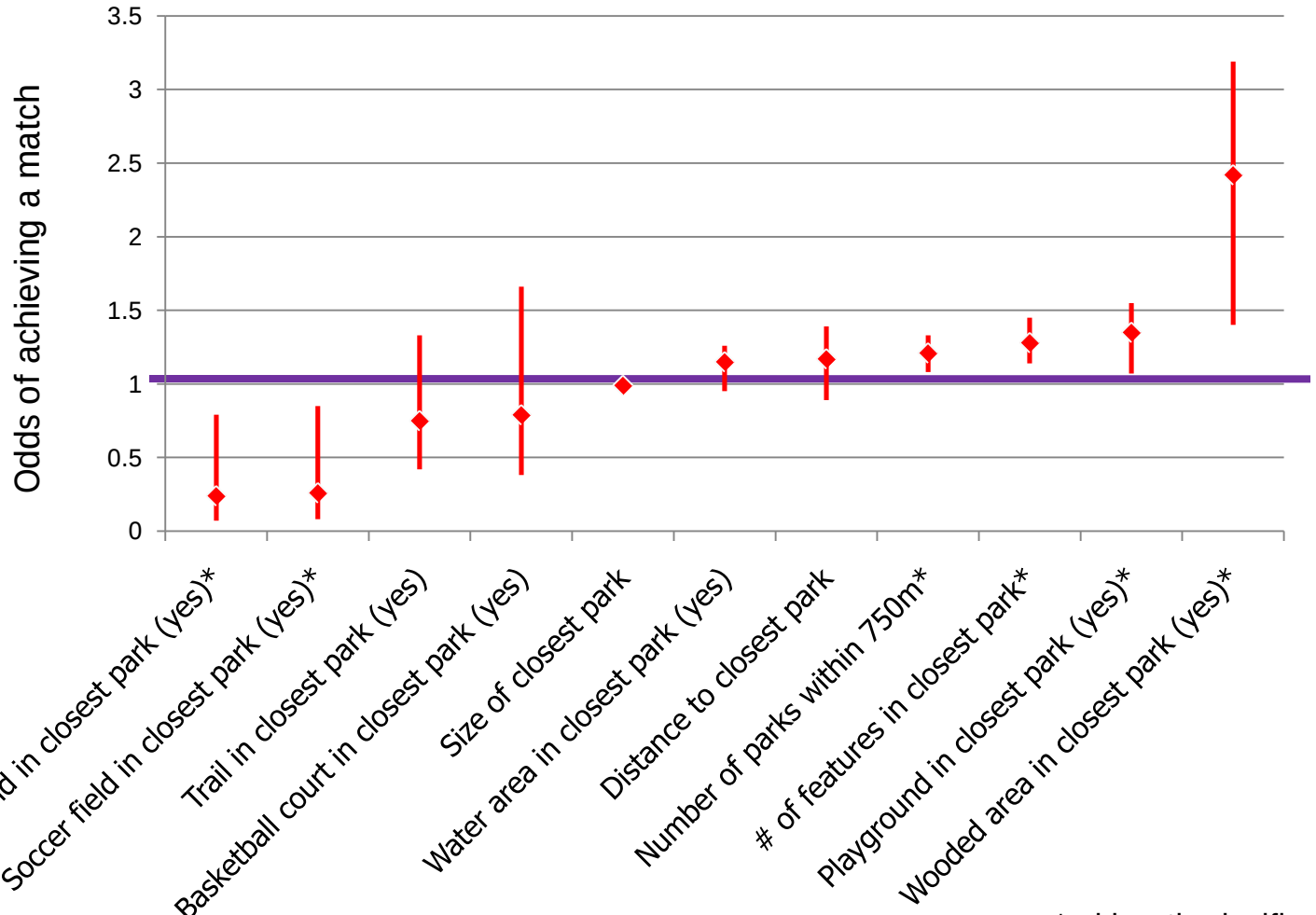
- Asked people how far they **perceived** they lived from their nearest park
- Measured distance to nearest park **objectively**
- How many people achieved a '**match**'? What increased the likelihood of a match?

Perceived Proximity	Objective Proximity: Closest park within 750m	Objective Proximity: Closest park > 750m
Closest park within 750m	8% (n=46)	3% (n=16)
Closest park > 750m	79% (n=455)	10% (n=57)

Lackey, K.J., & Kaczynski, A.T. (2009). Correspondence of perceived versus objective proximity to parks and their relationship to park-based physical activity. *International Journal of Behavioral Nutrition and Physical Activity*, 6, 53-61.

Park-Related Correlates of Perceived vs. Objective Correspondence

- Finally, several park-related variables were related to reduced or increased odds of achieving a match between perceived and objective proximity to parks



*odds ratio significant at p<.05

Associations with Neighborhood and Park-Based Physical Activity

- Having a park within 750m (measured objectively) was related to increased odds of engaging in at least some neighborhood-based PA
- Neither perceived proximity nor objective proximity to a park within 750m was related to increased odds of engaging in at least some park-based PA
- Achieving a match between perceived and objective proximity to a park within 750m was related to increased odds of engaging in at least some park-based PA

Proximity indicator	Neighborhood-Based Physical Activity		Park-Based Physical Activity	
	OR	95% CI	OR	95% CI
Perceived proximity	0.90	(0.47,1.72)	**1.10**	(0.75,1.47)
Objective proximity	**1.12***	(1.01,1.25)	**0.96**	(0.69,1.33)
Match perceived/objective	1.07	(0.85,1.26)	**1.63***	(1.29,2.02)

* odds ratio significant at the p<.05 level

Physical Activity Levels in Parks

- What percentage of park users are active during their visits?
- Are certain groups or park areas more active?

Examining Physical Activity in Parks through Observation

- Investigated how parks were used in minority communities in L.A. and how much physical activity occurs there
- Used SOPARC methodology to record 524-4628 observations in each of eight parks in Los Angeles over the course of a week
- 66% of park users observed were sedentary, 19% were walking, and 16% were engaged in more vigorous activities

- Average user was just below the threshold for ‘moderate’ physical activity
- More males than females used the parks and males were more likely than females to be vigorously active while there
- Interviews of park users and residents living within 2 miles of each park found that the park was their most common place for exercise

Cohen, D.A., McKenzie, T.L., Sehgal, A., Williamson, S., Golinelli, D., & Lurie, N. (2007). Contribution of public parks to physical activity. *American Journal of Public Health, 97*, 509-514.

Physical Activity in Urban vs. Rural Parks

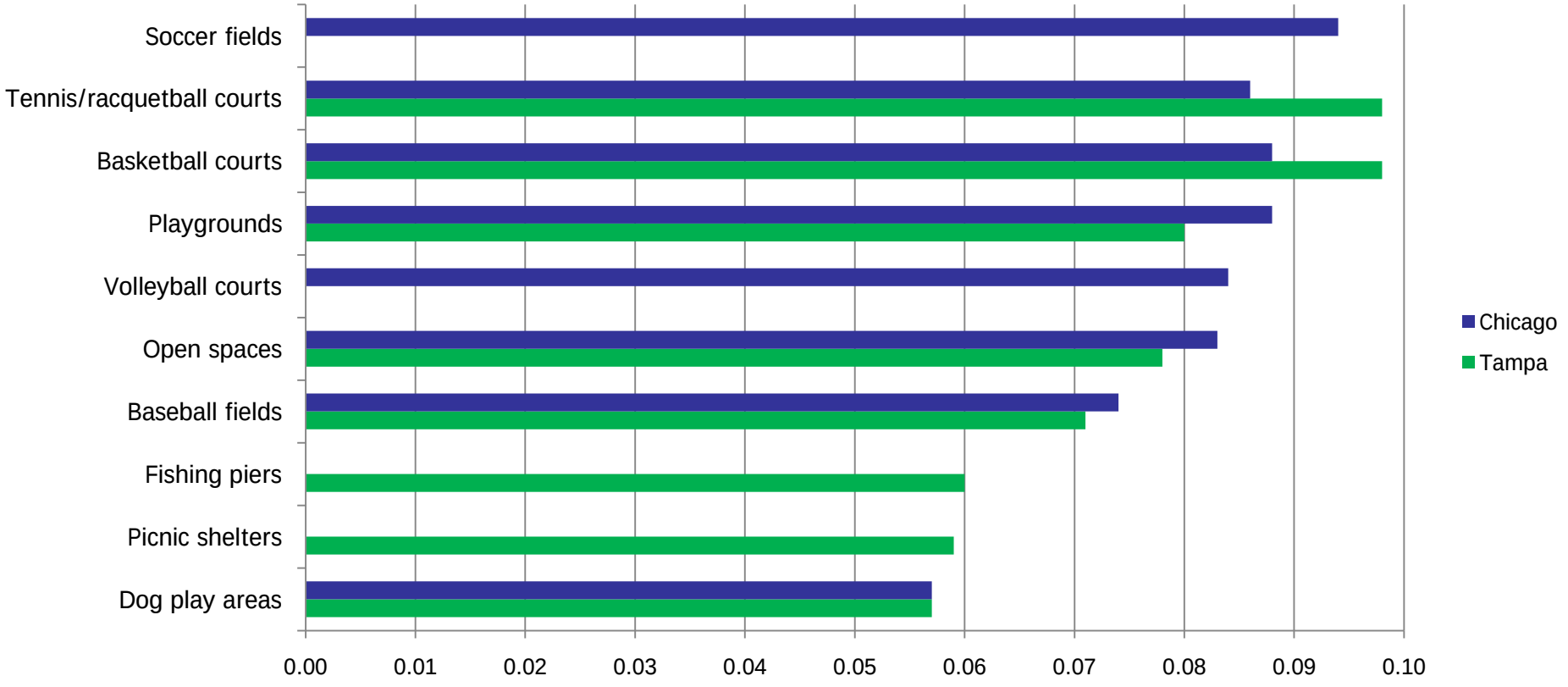
- Observation study of four urban and four rural parks in North Carolina
- Do park visitation patterns and physical activity levels differ across settings?
- Visits by day of week and time of day more evening distributed in urban parks
- More vigorous PA in urban parks
- More child users in urban parks, more adult users in rural parks

Park Visits	Rural	Urban
Day of week		
Monday	8.2%	13.2%
Tuesday	9.0%	13.2%
Wednesday	12.6%	13.0%
Thursday	11.3%	12.8%
Friday	25.1%	15.1%
Saturday	20.1%	15.1%
Sunday	13.7%	17.0%
Time of Day		
Morning	2.7%	29.4%
Lunch	24.5%	27.3%
Afternoon	38.8%	25.2%
Evening	34.0%	18.1%
Physical Activity Level		
Sedentary	50.5%	22.7%
Moderate	6.7%	5.1%
Vigorous	42.8%	72.2%

Shores, K.A., & West, S.T. (2010). Rural and urban park visits and park-based physical activity. *Preventive Medicine, 50*, S13-S17.

Physical Activity Levels by Park Zone

- Study of 10 parks in Tampa, FL and 18 parks in Chicago, IL (diverse n'hoods)
- What level of activity (energy expenditure) occurs in different areas of parks?



Floyd, M.F., Spengler, J.O., Maddock, J.E., Gobster, P.H., & Suau, L.J. (2008). Park-based physical activity in diverse communities of two U.S. cities: An observational study. *American Journal of Preventive Medicine, 34*(4), 299-305.

Parks and Environmental Justice

- Are parks equitably distributed by income/race?
- Are park features/characteristics equitably distributed?

Neighborhood Socioeconomic Status and Physical Activity Resources

- Does the availability of physical activity resources differ by neighborhood socioeconomic status (SES)? (Estabrooks et al., 2003)
- Identified 177 resources (112 parks, 33 sports facilities, 15 fitness clubs, 11 community centers, and 5 trails) in a mid-sized U.S. city
- High SES areas (census tracts) had significantly more resources than low and medium SES areas
- Similar number of pay-for-use facilities in all three areas, but significantly more *free* facilities in *high* SES areas
- Parks and recreation resources in lower income developments also had more incivilities – e.g., litter, vandalism, etc. (Lee et al., 2006)

Estabrooks, P.A., Lee, R.E., & Gyurcsik, N.C. (2003). Resources for physical activity participation: Does availability and accessibility differ by neighborhood socioeconomic status. *Annals of Behavioral Medicine, 25*(2), 100-104.

Lee, R.E., Booth, K.M., Reese-Smith, J.Y., Regan, G., & Howard, H.H. (2005). The Physical Activity Resource Assessment (PARA) instrument: Evaluating features, amenities, and incivilities of physical activity resources in urban neighborhoods. *International Journal of Behavioral Nutrition and Physical Activity, 2*, 13-21.

Park Features and Neighborhood Income

- Do features of parks vary by neighborhood socioeconomic status (Melbourne, AU)?
- Audited 1497 public open spaces (POS) for # of recreation facilities, # of amenities, # of playgrounds, and presence of several individual facilities and amenities
- Divided neighborhoods into (5) quintiles of SES based on income and employment
- Compared with POS in lower SES neighborhoods, POS in highest SES neighborhoods had more amenities and were more likely to have shade trees, a water feature, walking and cycling paths, lighting, and various forms of signage
- No difference in total # of recreation facilities or # of playgrounds across neighborhoods of different SES levels

Crawford, D., Timperio, A., Giles-Corti, B., Ball, K., Hume, C., Roberts, R., et al. (2008). Do features of public open spaces vary according to neighbourhood socio-economic status? *Health & Place, 14*, 889-893.

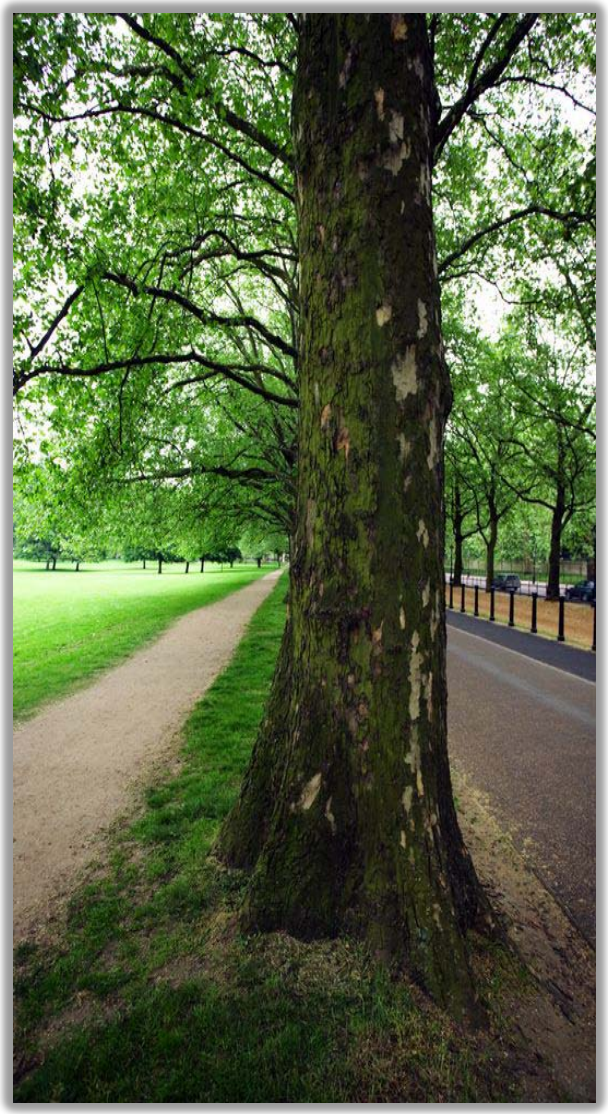
Presentation Overview

- Benefits of parks to communities

- Overview of parks and physical activity research
  - Benefits of parks
  - Park proximity
  - Park awareness
  - Park characteristics
  - Physical activity levels in parks
  - Parks and environmental justice

- **Tools to examine physical activity in your parks**
  - **Example: Kansas City Parks & Physical Activity Study**
    - **Observation**
    - **Visitor Surveys**
    - **Park Audit**

- Discussion and Questions



KC Parks and Physical Activity Study

- Purpose:
  - To examine the role of park environments in facilitating physical activity.

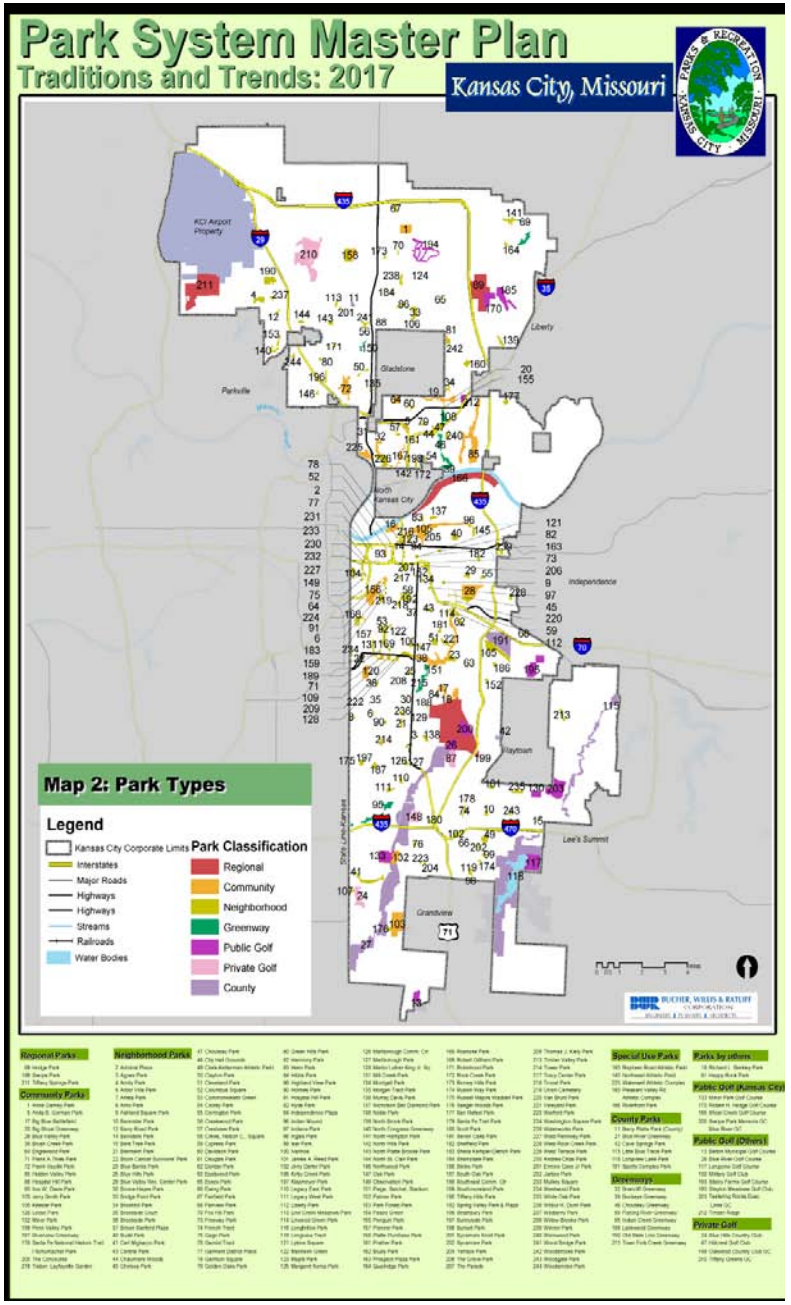
- Objectives:
  - Better understand the amount of physical activity that occurs in parks, including its intensity (sedentary, moderate, or strenuous) and duration
  - Examine the level of physical activity that occurs in different areas of park environments
  - Understand park users' perspectives (e.g., motivations, constraints, visitation patterns, use behaviors) on the role of parks in their physical activity participation

- Study components:
  - Systematic observation of physical activity behaviors of park users
  - Survey of park users
  - Inventory/audit of physical features of parks

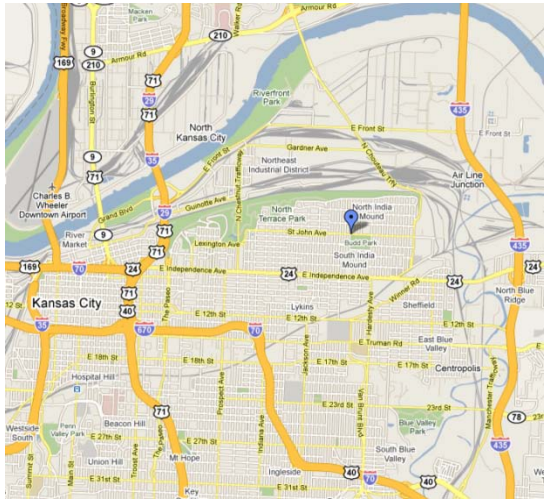
KC Parks and Physical Activity Study

- In total, the Kansas City, Missouri parks system comprises 219 parks
- Study in 4 parks in central area of Kansas City
  - Budd Park
  - Loose Park
  - Penn Valley Park
  - Roanoke Park
- Data collected in July and August 2009

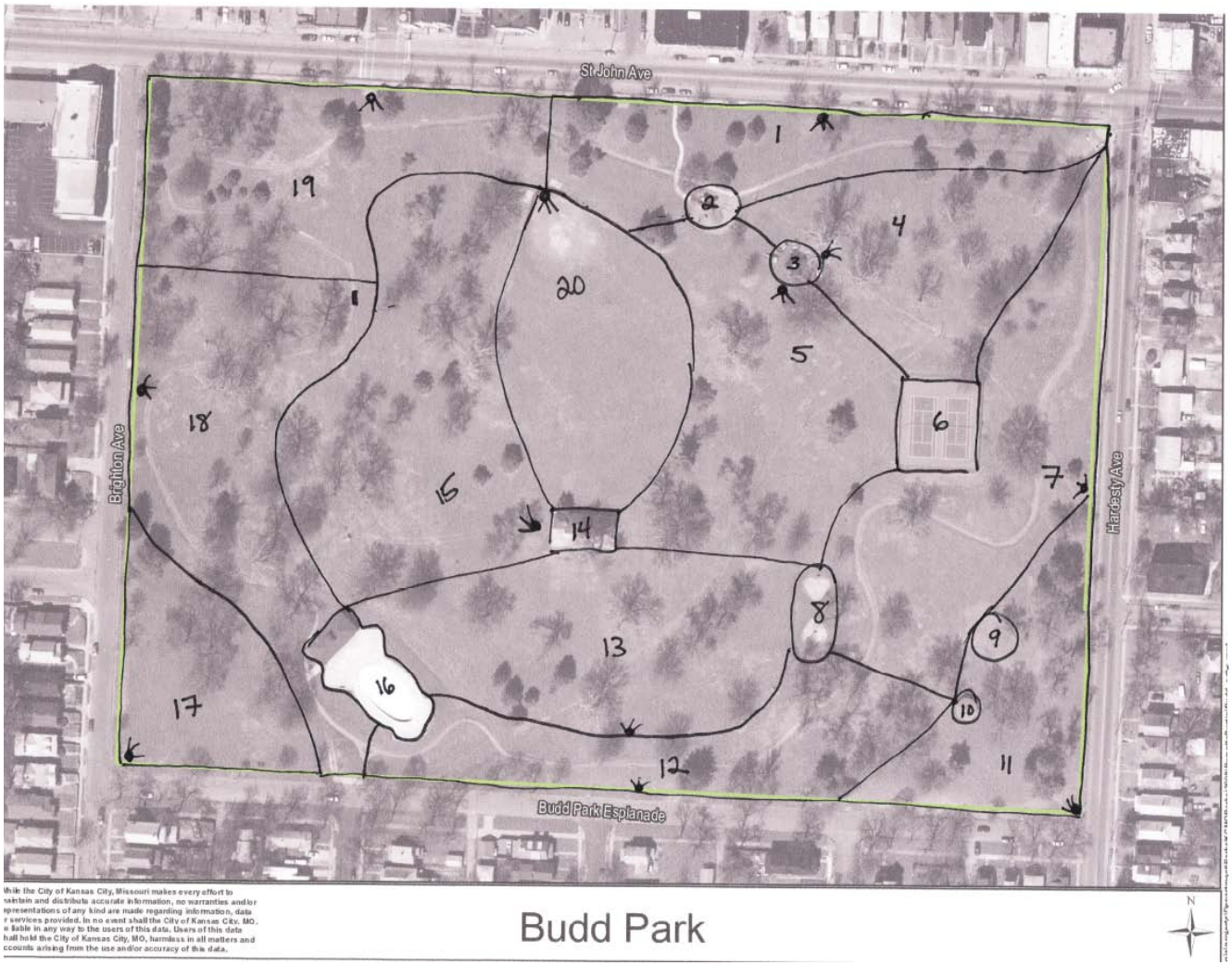
Thank you for funding support!
- *Kansas City Parks and Recreation Department*
- *Kansas State University Office of Research*
- *University of Missouri Research Council*



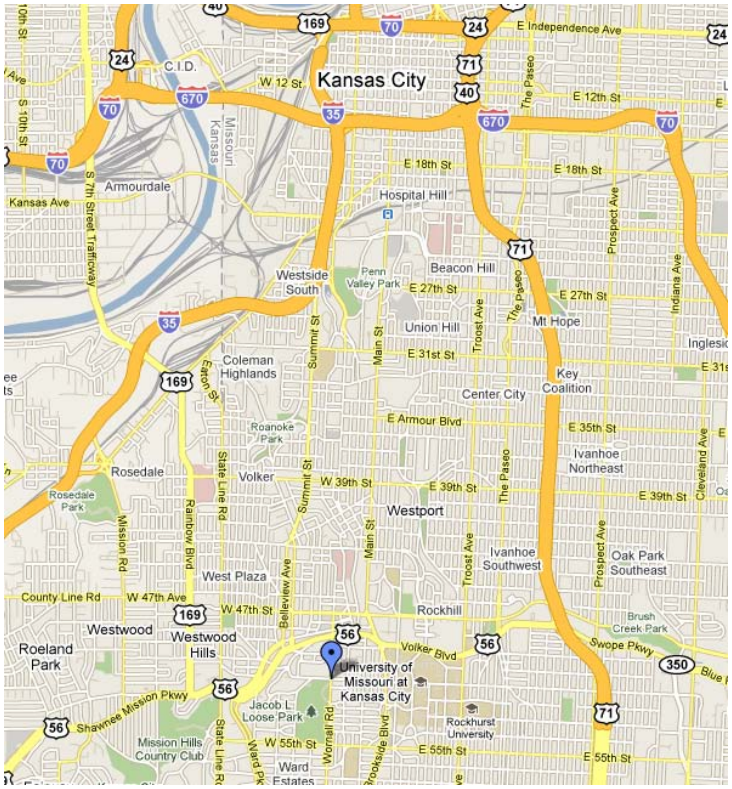
Budd Park



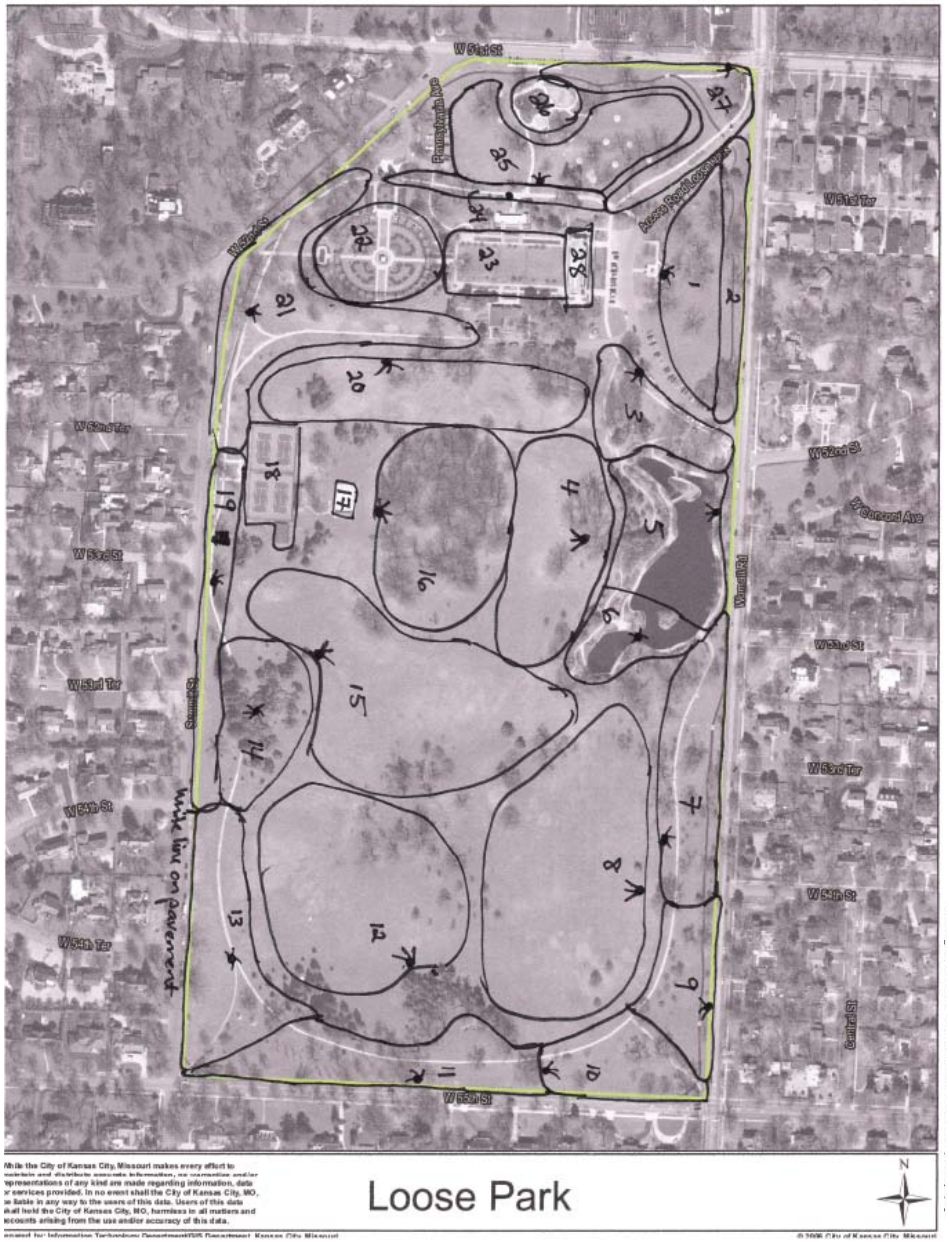
- 26.4 acres
- 20 target areas



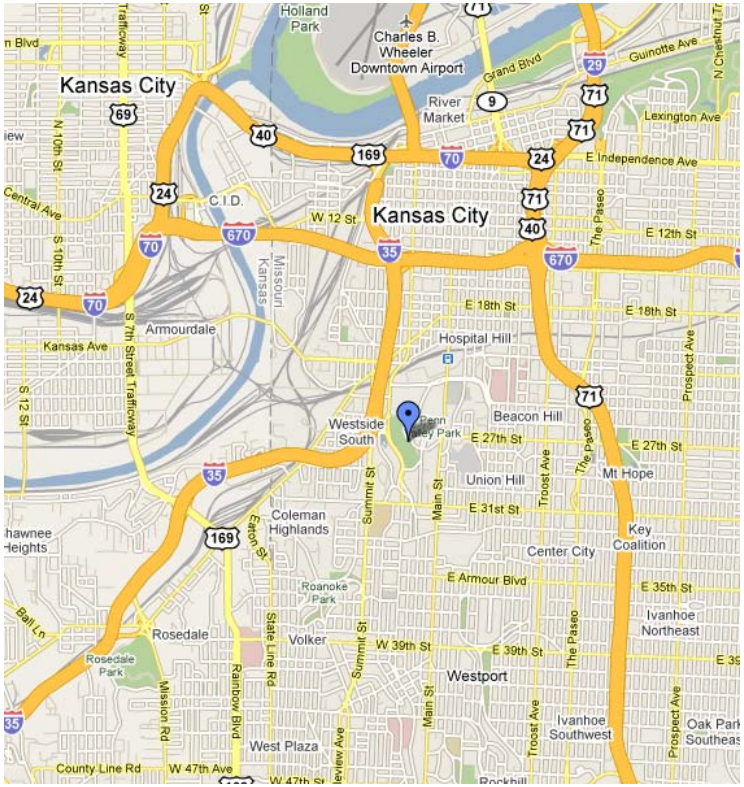
Jacob Loose Memorial Park



- 74.1 acres
- 28 target areas

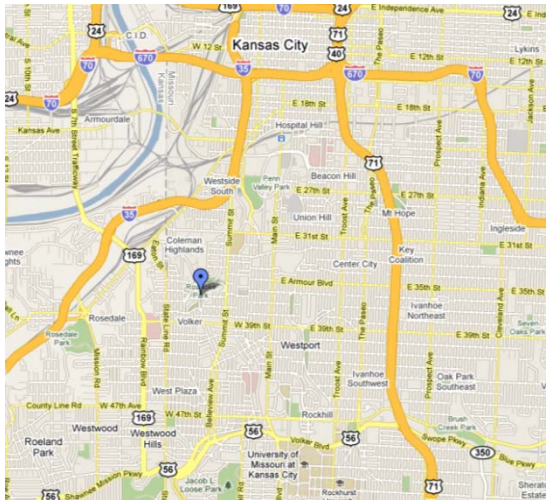


Penn Valley Park



- 129.6 acres
- 21 target areas

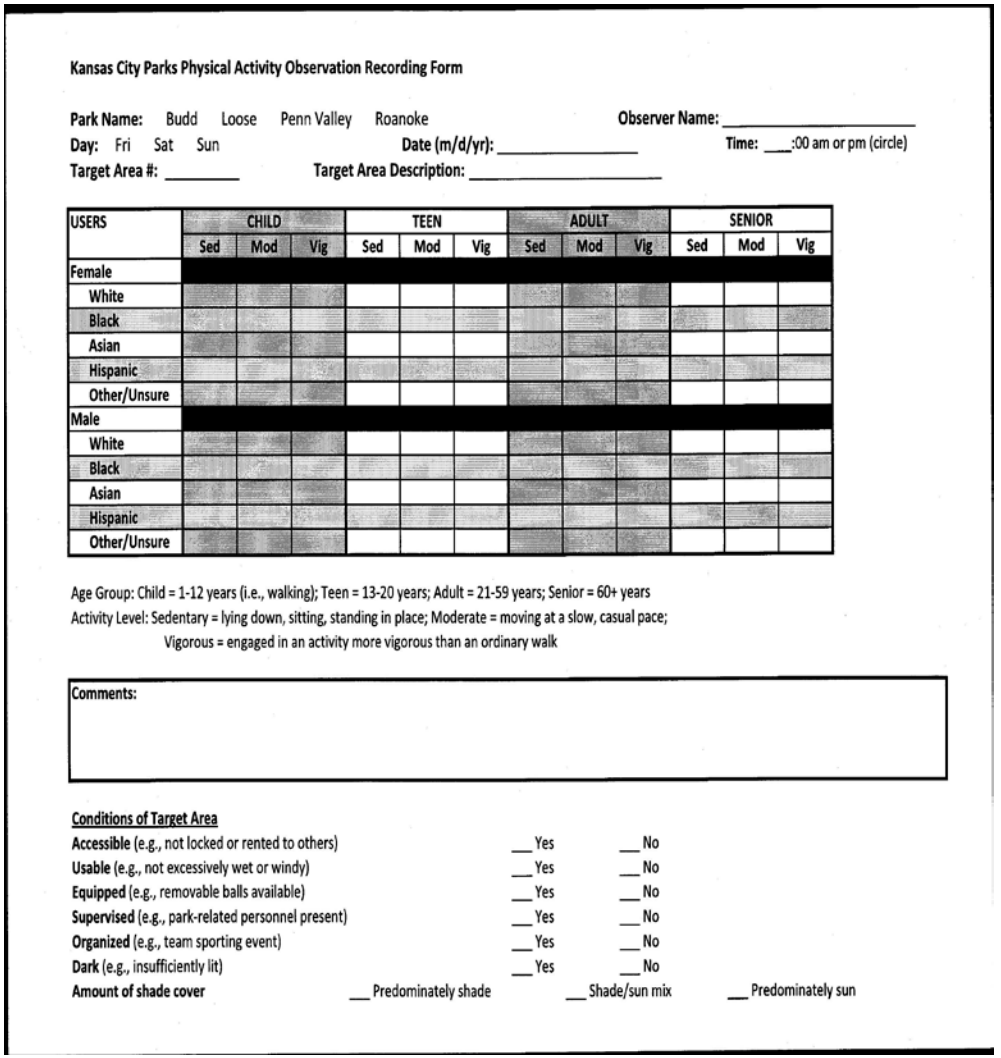
Roanoke Park



- 37.6 acres
- 14 target areas

KC Parks and Physical Activity Study – Data Collection Methods

- **SOPARC –** System for Observing Play and Recreation in Communities (McKenzie et al., 2006)
- Reliable & validated method to observe the physical activity behaviors of park users
- Systematic scans rotating through park 'target areas' (smaller scanning zones)
- Characteristics of users recorded include gender, age group, race, physical activity intensity level
- Data can be used to describe:
  - How much PA occurs in parks
  - What areas of parks experience more use and/or PA
  - Differences in use & activity by gender, age & race



Kansas City Parks Physical Activity Observation Recording Form

Park Name: Budd Loose Penn Valley Roanoke Observer Name: _____
Day: Fri Sat Sun Date (m/d/yr): _____ Time: ___:00 am or pm (circle)
Target Area #: _____ Target Area Description: _____

USERS	CHILD			TEEN			ADULT			SENIOR		
	Sed	Mod	Vig	Sed	Mod	Vig	Sed	Mod	Vig	Sed	Mod	Vig
Female												
White												
Black												
Asian												
Hispanic												
Other/Unsure												
Male												
White												
Black												
Asian												
Hispanic												
Other/Unsure												

Age Group: Child = 1-12 years (i.e., walking); Teen = 13-20 years; Adult = 21-59 years; Senior = 60+ years
Activity Level: Sedentary = lying down, sitting, standing in place; Moderate = moving at a slow, casual pace; Vigorous = engaged in an activity more vigorous than an ordinary walk

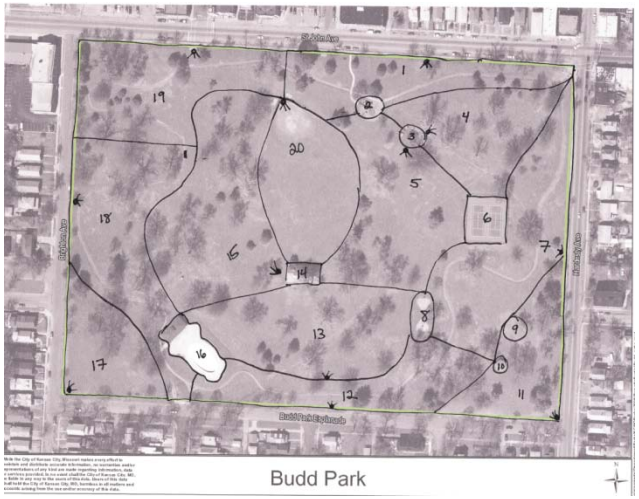
Comments:

Conditions of Target Area

Accessible (e.g., not locked or rented to others) __Yes __No
Usable (e.g., not excessively wet or windy) __Yes __No
Equipped (e.g., removable balls available) __Yes __No
Supervised (e.g., park-related personnel present) __Yes __No
Organized (e.g., team sporting event) __Yes __No
Dark (e.g., insufficiently lit) __Yes __No
Amount of shade cover __Predominately shade __Shade/sun mix __Predominately sun

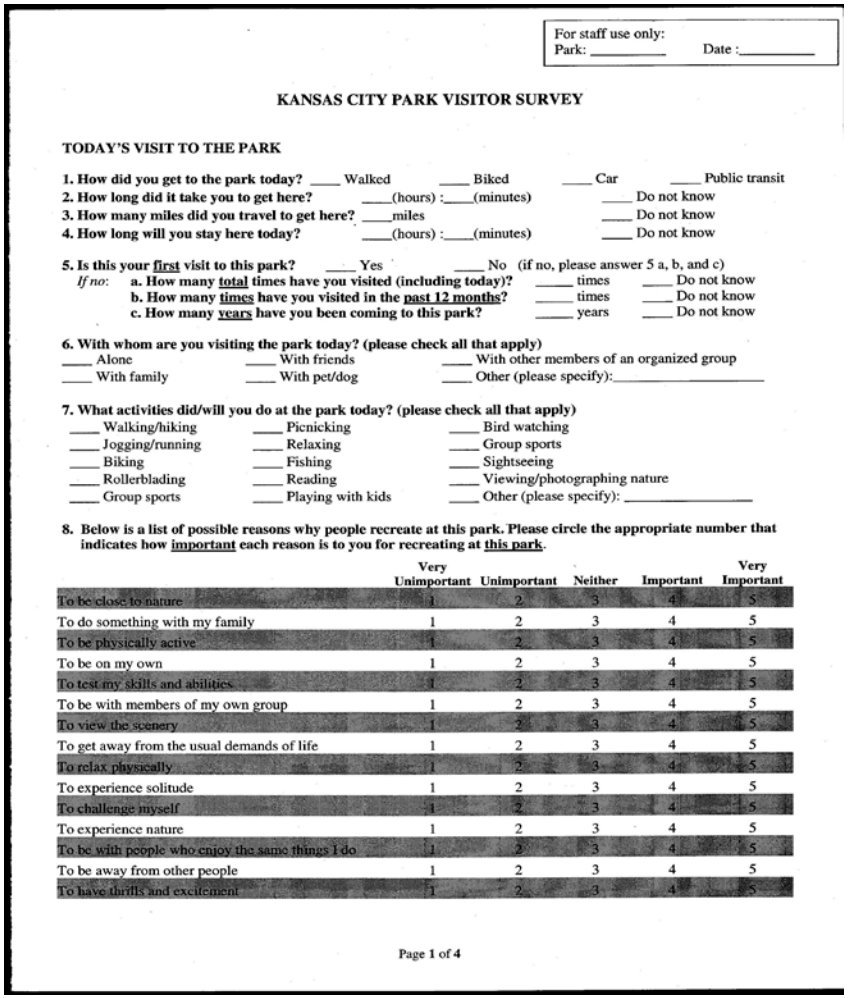
KC Parks and Physical Activity Study – Data Collection Methods

- **SOPARC –** System for Observing Play and Recreation in Communities (McKenzie et al., 2006)
- Training & reliability testing
- Systematic scans rotating through park target areas
- Each park observed two weekends (Fri-Sun) across all hours from 7 am – 8 pm
- Total of 39 scans of each target area across entire study
- Grand total of 3125 activity zone scans across entire study



KC Parks and Physical Activity Study – Data Collection Methods

- **Park Visitor Survey –** combination of existing and developed questions and scales to capture behaviors and influences related to park-based physical activity
  - Motivations for park visit
  - Importance of site attributes for physical activity participation
  - Constraints to park-based physical activity
  - Level of physical activity during park visit
  - Place attachment
  - Socio-demographic characteristics (including address)



For staff use only:
Park: _____ Date: _____

KANSAS CITY PARK VISITOR SURVEY

TODAY'S VISIT TO THE PARK

1. How did you get to the park today? ____ Walked ____ Biked ____ Car ____ Public transit
2. How long did it take you to get here? ____(hours) :____(minutes) ____ Do not know
3. How many miles did you travel to get here? ____miles ____ Do not know
4. How long will you stay here today? ____(hours) :____(minutes) ____ Do not know

5. Is this your first visit to this park? ____ Yes ____ No (if no, please answer 5 a, b, and c)
If no:
a. How many total times have you visited (including today)? _____ times ____ Do not know
b. How many times have you visited in the past 12 months? _____ times ____ Do not know
c. How many years have you been coming to this park? _____ years ____ Do not know

6. With whom are you visiting the park today? (please check all that apply)
____ Alone ____ With friends ____ With other members of an organized group
____ With family ____ With pet/dog ____ Other (please specify):_____

7. What activities did/will you do at the park today? (please check all that apply)
____ Walking/hiking ____ Picnicking ____ Bird watching
____ Jogging/running ____ Relaxing ____ Group sports
____ Biking ____ Fishing ____ Sightseeing
____ Rollerblading ____ Reading ____ Viewing/photographing nature
____ Group sports ____ Playing with kids ____ Other (please specify): _____

8. Below is a list of possible reasons why people recreate at this park. Please circle the appropriate number that indicates how important each reason is to you for recreating at this park.

	Very Unimportant	Unimportant	Neither	Important	Very Important
To be close to nature	1	2	3	4	5
To do something with my family	1	2	3	4	5
To be physically active	1	2	3	4	5
To be on my own	1	2	3	4	5
To test my skills and abilities	1	2	3	4	5
To be with members of my own group	1	2	3	4	5
To view the scenery	1	2	3	4	5
To get away from the usual demands of life	1	2	3	4	5
To relax physically	1	2	3	4	5
To experience solitude	1	2	3	4	5
To challenge myself	1	2	3	4	5
To experience nature	1	2	3	4	5
To be with people who enjoy the same things I do	1	2	3	4	5
To be away from other people	1	2	3	4	5
To have thrills and excitement	1	2	3	4	5

Page 1 of 4

KC Parks and Physical Activity Study – Data Collection Methods

- **Park Visitor Survey –** combination of existing and developed questions and scales to capture behaviors and influences related to park-based physical activity

- Conducted onsite surveys in each park two weekends (Fri-Sun) across all hours 7 am – 8 pm

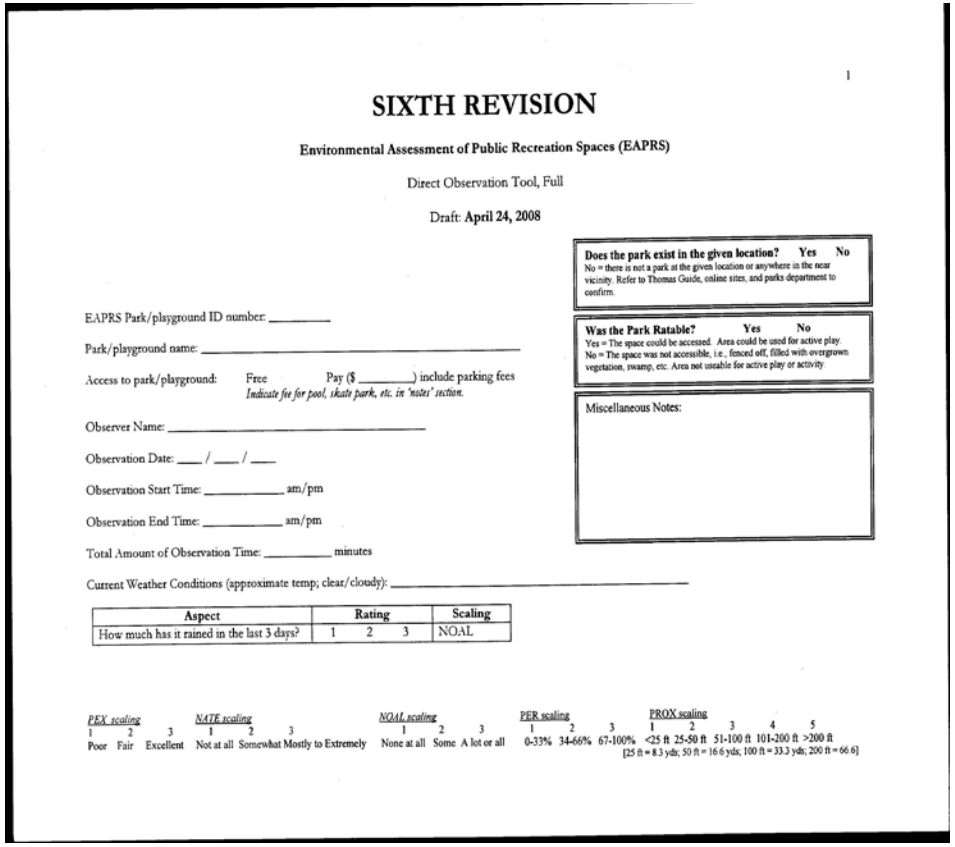
- Similar to observations, systematically moved through park target areas

- Approached visitors 18 years & older, and invited to participate

- 474 valid completed surveys (60.5% Response rate)

KC Parks and Physical Activity Study – Data Collection Methods

- **Park Activity Zone Audits –** Environmental Assessment of Public Recreation Spaces (EAPRS) tool (Saelens et al., 2006)
- Ratings of the presence or absence of elements in each activity zone (e.g., water fountain near trail)
- Ratings of various quality and condition attributes for each zone
- Ratings of presence/absence and quality/condition features for overall areas within and outside park
- Audits completed for all 83 target areas across the four parks



SIXTH REVISION

Environmental Assessment of Public Recreation Spaces (EAPRS)

Direct Observation Tool, Full

Draft: **April 24, 2008**

Does the park exist in the given location? Yes No
No = there is not a park at the given location or anywhere in the near vicinity. Refer to Thomas Guide, online sites, and parks department to confirm.

Was the Park Ratable? Yes No
Yes = The space could be accessed. Area could be used for active play.
No = The space was not accessible, i.e., fenced off, filled with overgrown vegetation, swamp, etc. Area not useable for active play or activity.

Miscellaneous Notes:

EAPRS Park/playground ID number: _____

Park/playground name: _____

Access to park/playground: Free Pay ($ _____) include parking fees
Indicate fee for pool, skate park, etc. in 'notes' section.

Observer Name: _____

Observation Date: ___ / ___ / ___

Observation Start Time: _____ am/pm

Observation End Time: _____ am/pm

Total Amount of Observation Time: _____ minutes

Current Weather Conditions (approximate temp; clear/cloudy): _____

Aspect	Rating	Scaling
How much has it rained in the last 3 days?	1 2 3	NOAL

PEX scaling
1 2 3
Poor Fair Excellent

NATE scaling
1 2 3
Not at all Somewhat Mostly to Extremely

NOAL scaling
1 2 3
None at all Some A lot or all

PER scaling
1 2 3
0-33% 34-66% 67-100%

PROX scaling
1 2 3 4 5
<25 ft 25-50 ft 51-100 ft 101-200 ft >200 ft
[25 ft = 8.3 yds; 50 ft = 16.6 yds; 100 ft = 33.3 yds; 200 ft = 66.6]

KC Parks and Physical Activity Study

- **What did we find??**

KC Parks and Physical Activity Study – Characteristics of Park Users

Observations:

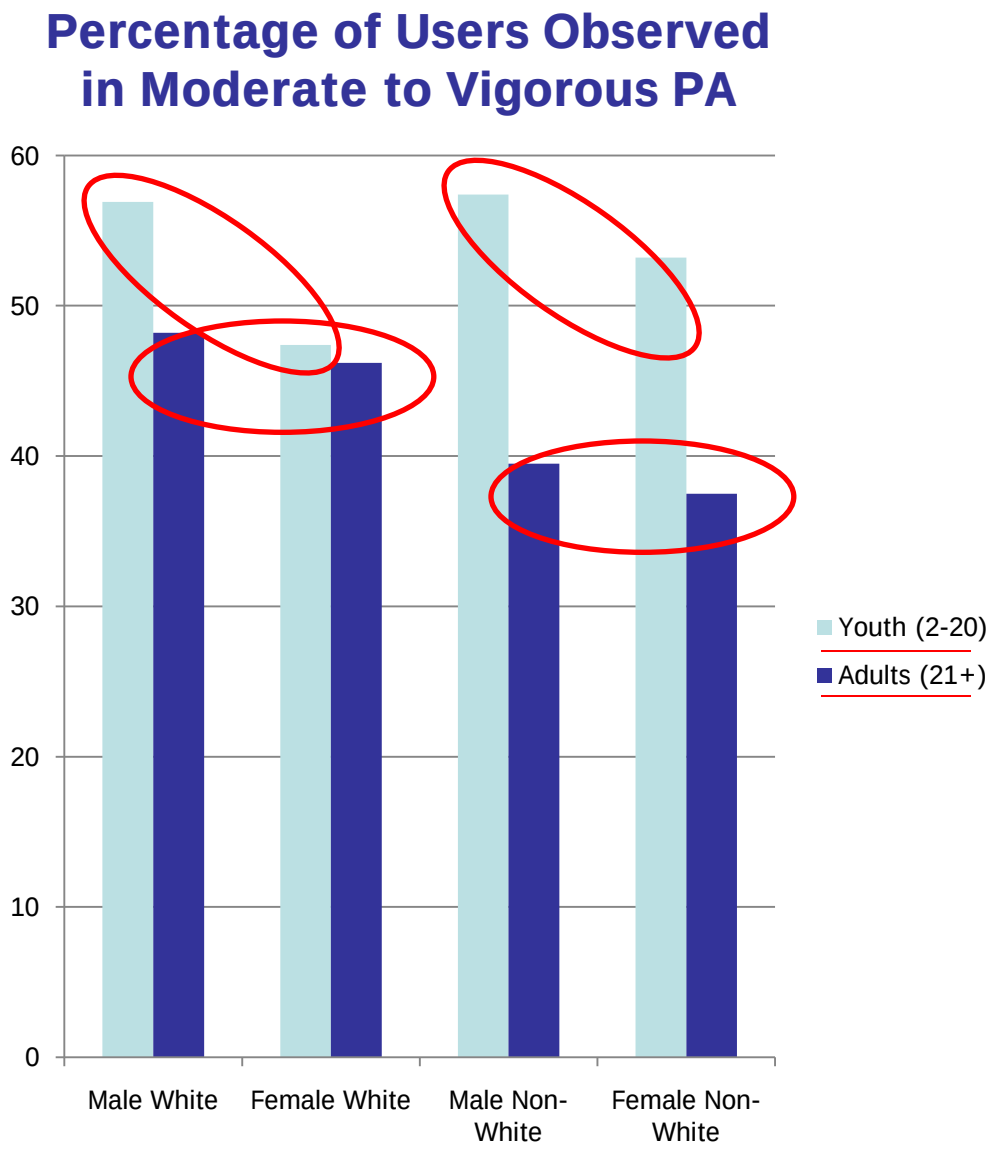
- Total of 8855 people observed across the 39 hours per park
- Gender
  - Female – 51.2%
  - Male – 48.8%
- Age
  - Child – 21.8%
  - Teen – 5.9%
  - Adult – 67.0%
  - Senior – 5.3%
- Race/Ethnicity
  - White – 63.4%
  - Black – 17.5%
  - Hispanic – 14.8%
  - Asian – 1.5%
  - Other/Undetermined – 2.7%
- Activity
  - Sedentary – 52.7%
  - Moderately active – 41.2%
  - Vigorously active – 6.1%

Visitor Survey:

- 474 respondents (adults 18+ only)
- Gender
  - Female – 45.8%
  - Male – 54.2%
- Age
  - 18-29 – 29.3%
  - 30-49 – 48.7%
  - 50-64 – 17.2%
  - 65^{+} – 4.8%
- Race/Ethnicity
  - White – 66.2%
  - Black – 11.3%
  - Hispanic – 14.9%
  - Asian – 1.7%
  - Other – 5.9%
- Body Mass Index (BMI)
  - Under/normal weight (BMI<24.9) – 50.6%
  - Overweight (BMI 25-30) – 32.0%
  - Obese (BMI>30) – 17.4%

Physical Activity Intensity by Gender/Race Across Age Groups

- *Are certain park users more likely to be observed engaging in moderate-to-vigorous (MVPA) rather than sedentary activity?*
- Four groups – male/white, female/white, male/non-white, female/non-white
- Among adults, male/white and female/white users more likely to be observed engaging in MVPA
- Among youth, males generally more active than females, but mixed findings between race groups



Park Activity Zones and Physical Activity Intensity

- *Does the number of park users observed being sedentary, moderate, and vigorously active differ by area of the park?*

Target Area Type*	# of users	Sed	Mod	Vig
Paved trail	3456	35%	57%	9%
Basketball court	41	37%	49%	15%
Tennis court	369	41%	48%	11%
Skate park	126	45%	35%	20%
Football field	12	50%	42%	8%
Volleyball court	34	50%	44%	6%
Playground	1182	56%	39%	5%
Ball diamond	38	63%	32%	5%
Dog park	323	67%	33%	1%
Open space	1916	67%	29%	4%
Pool/Splash pad	525	68%	29%	3%
Picnic shelter	665	80%	17%	3%
Lake	168	82%	17%	1%

*listed in order from least sedentary to most sedentary

Park Activity Zones and Physical Activity Intensity

- *Does the number of park users observed being sedentary, moderate, and vigorously active differ by area of the park?*

- Paved trails highly used and users were highly active

Target Area Type*	# of users	Sed	Mod	Vig
Paved trail	3456	35%	57%	9%
Basketball court	41	37%	49%	15%
Tennis court	369	41%	48%	11%
Skate park	126	45%	35%	20%
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Picnic shelter	665	80%	17%	3%
Lake	168	82%	17%	1%

*listed in order from least sedentary to most sedentary

Park Activity Zones and Physical Activity Intensity

- *Does the number of park users observed being sedentary, moderate, and vigorously active differ by area of the park?*
- Paved trails highly used and users were highly active
- Some facilities highly used but not as active (e.g., playground, open space)

Target Area Type*	# of users	Sed	Mod	Vig
Paved trail	3456	35%	57%	9%
Basketball court	41	37%	49%	15%
Tennis court	369	41%	48%	11%
Skate park	126	45%	35%	20%
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*listed in order from least sedentary to most sedentary

Park Activity Zones and Physical Activity Intensity

- *Does the number of park users observed being sedentary, moderate, and vigorously active differ by area of the park?*
- Paved trails highly used and users were highly active
- Some facilities highly used but not as active (e.g., playground, open space)
- Some activity areas (e.g., shelter, lake) contribute little to physical activity (but still may be important?)

Target Area Type*	# of users	Sed	Mod	Vig
Paved trail	3456	35%	57%	9%
Basketball court	41	37%	49%	15%
Tennis court	369	41%	48%	11%
Skate park	126	45%	35%	20%
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Picnic shelter	665	80%	17%	3%
Lake	168	82%	17%	1%

*listed in order from least sedentary to most sedentary

Park User Perspectives: Importance of Site Attributes

Importance of site attributes for physical activity participation

- All site attributes were rated as important for physical activity
  - Including being near water & having picnic areas

Important site attributes	Number	Mean
Feeling safe from crime	458	4.47
Beauty	463	4.25
Maintenance (e.g., fountains work)	457	4.24
Feeling safe from injury	461	4.23
Easy to get here	462	4.23
Cleanliness of facilities (e.g., toilets)	456	4.17
Close to home	461	4.08
Walking / hiking / biking paths	457	4.06
Drinking fountains	461	3.99
Parking	457	3.99
Restrooms	464	3.98
Benches	462	3.97
Lighting	461	3.94
Picnic area	453	3.67
Playground	462	3.61
Being near water	458	3.61
Sports fields (e.g., tennis, baseball, soccer)	456	3.35

* 1 = Very Unimportant to 5 = Very Important

Park User Perspectives: Importance of Site Attributes

Importance of site attributes for physical activity participation

- All site attributes were rated as important for physical activity
  - Including being near water & having picnic areas
- Visitor rated feeling safe from crime as the most important site attribute for physical activity

Important site attributes	Number	Mean
Feeling safe from crime	458	4.47
Beauty	463	4.25
Maintenance (e.g., fountains work)	457	4.24
Feeling safe from injury	461	4.23
Easy to get here	462	4.23
Cleanliness of facilities (e.g., toilets)	456	4.17
Close to home	461	4.08
Walking/hiking/biking paths	457	4.06
Drinking fountains	461	3.99
Parking	457	3.99
Restrooms	464	3.98
Benches	462	3.97
Lighting	461	3.94
Picnic area	453	3.67
Playground	462	3.61
Being near water	458	3.61
Sports fields (e.g., tennis, baseball, soccer)	456	3.35

* 1 = Very Unimportant to 5 = Very Important

Park User Perspectives: Importance of Site Attributes

Importance of site attributes for physical activity participation

- All site attributes were rated as important for physical activity
  - Including being near water & having picnic areas
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- Visitor rated feeling safe from crime as the most important site attribute for physical activity
- Followed by beauty & maintenance of facilities
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- Sport fields were surprising rated as the least important (although still important)

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Park User Perspectives: Motivations

Motivations for park visit

- Physical activity common benefit sought by people using parks & trails, but rarely sole motivation
- Park visitors highly motivated

Motivations for park visit	Number	Mean
Health	**472**	**4.03**
To be physically active	452	4.08
To get away from the usual demands of life	468	4.05
To relax physically	457	3.97
Enjoy Nature	**473**	**3.90**
To be close to nature	468	4.00
To view scenery	457	3.88
To experience nature	471	3.83
Social Interaction	**470**	**3.76**
To do something with my family	458	3.99
To be with people who enjoy the some things I do	456	3.90
To be with members of my own group	452	3.36
Achievement	**465**	**3.02**
To have thrills and excitement	458	3.12
To challenge myself	451	3.06
To test my skills and abilities	442	2.86
Solitude	**468**	**2.96**
To experience solitude	461	3.15
To be on my own	456	2.98
To be away from other people	458	2.71

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Park User Perspectives: Motivations

Motivations for park visit

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- Park visitors highly motivated
- Most motivated by health benefits
- Followed by getting to enjoy nature
- Least motivated by solitude experiences

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Park User Perspectives: Constraints

Constraints to park–based physical activity

- Factors that limit or inhibit participation & enjoyment in leisure activities
- In general, low levels of constraints

Constraints to park-based physical activity*	Number	Mean
Structural	**456**	**1.47**
Poorly maintained park (e.g., run down facilities)	438	1.82
Don't have enough time	421	1.74
Park is not designed for the activities I want to do	423	1.64
I am physically active elsewhere	400	1.64
Lack of scenic beauty	424	1.52
Lack information on recreational opportunities at the park	417	1.48
Park is too far away from where I live	431	1.46
Limited park hours	425	1.36
Park is too crowded	419	1.24
Conflict with other park users	425	1.21
Lack transportation to the park	417	1.19
Don't feel welcome at the park	423	1.12
Interpersonal	**443**	**1.43**
No one to be physically active with	408	1.57
Friends/family don't have time	406	1.52
Friends/family prefer other activities	408	1.51
Too many family obligations	407	1.49
Friends/family skill levels different than mine	417	1.24
Lack support from friends/family	410	1.20
Intrapersonal	**454**	**1.41**
Fear of crime from other people in the park	439	1.92
Personal safety concerns (e.g., fear of injury)	433	1.60
Not in good enough shape	422	1.42
Don't have enough physical energy	421	1.35
Don't like to be physically active	388	1.29
Self-conscious when physically active	428	1.26
Personal health problems (e.g., difficulty walking)	418	1.25
Fear of prejudice from others based on my race/ethnicity	421	1.19
Don't have the right skills	413	1.14

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- Factors that limit or inhibit participation & enjoyment in leisure activities
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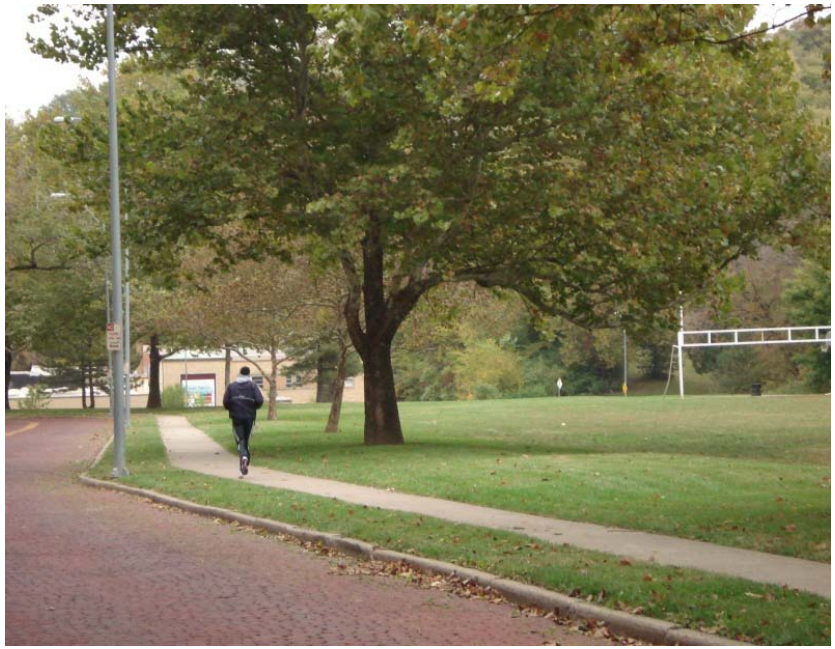
KC Parks and Physical Activity Study – Future Research Questions / Analyses

- What level of physical activity occurs in different park areas?
  - Translate into energy expenditure and estimates of pounds lost
  - Comparisons by sub-groups (e.g., age, gender, race)



Use and Physical Activity Intensity by Park Area Among Children & Hispanics

Children (0-12 years)

Target Area Type*	# of users	Sed	Mod	Vig
Football field	2	0%	50%	50%
Tennis courts	18	22%	78%	0%
Skate park	11	27%	45%	27%
Dog park	15	33%	60%	7%
Playground	605	37%	54%	9%
Paved trail	441	38%	55%	7%
Pool/Splash pad	246	48%	46%	5%
Open space	374	55%	38%	7%
Basketball court	9	56%	33%	11%
Picnic shelter	188	67%	23%	10%
Lake	25	84%	16%	0%
Ball diamond	0	n/a	n/a	n/a
Volleyball court	0	n/a	n/a	n/a

Hispanics (all ages)

Target Area Type*	# of users	Sed	Mod	Vig
Football field	4	25%	50%	25%
Basketball court	17	35%	53%	12%
Paved trail	371	37%	57%	5%
Tennis courts	84	40%	49%	11%
Skate park	10	40%	50%	10%
Ball diamond	2	50%	50%	0%
Pool/Splash pad	104	56%	39%	5%
Playground	255	64%	30%	7%
Open space	223	65%	30%	4%
Picnic shelter	157	72%	21%	7%
Dog park	6	83%	0%	17%
Lake	79	86%	13%	1%
Volleyball court	0	n/a	n/a	n/a

KC Parks and Physical Activity Study – Future Research Questions / Analyses

- What level of physical activity occurs in different park areas?
  - Translate into energy expenditure and estimates of pounds lost
  - Comparisons by sub-groups (e.g., age, gender, race)

- How do social-psychological and environmental factors (e.g., motivations, site attributes, etc.) differ by sub-groups (e.g., age, gender, race)?
  - How do social-psychological and environmental factors influence park-based physical activity?

- What percentage of an individual's total physical activity occurs in parks?

KC Parks and Physical Activity Study – Ongoing Projects

- Development of a community stakeholder park audit tool
- Examining neighborhood and park influences on physical activity

Development of a Community Stakeholder Park Audit Tool

- Funded by the Robert Wood Johnson Foundation Active Living Research program
- Several park audit tools previously developed (see below) – each has its own strengths and weaknesses, but none designed with or for non-researchers
- Varying lengths and coverage of important dimensions

Audit Tool	Use Setting	Length	Park Quality	Youth-Oriented	Developed with stakeholders	Tested with stakeholders
BRAT-DO	Parks	16 pages, 181 items	Yes	No	Some	No
EAPRS	Parks	47 pages, 646 items	Yes	Somewhat	Some	No
PARA	Varied resources	1 page, 49 items	Limited	No	No	No
POST	Parks, ovals	2.5 pages, 88 items	Limited	No	Some	No
SHAPE	Parks	1 page, 20 items	Yes	No	Some	No

Park Audit Tool Development Project – Purpose, Stages, Setting, Participants

- Study purpose: To develop a user-friendly park audit tool that has been developed, tested, and disseminated with diverse community stakeholders

- Study stages (Feb 2010 to March 2011):
  1. Review of existing instruments
  2. Planning workshop with community stakeholders
  3. Development of park audit tool
  4. Training workshop with community stakeholders
  5. Testing of park audit tool
  6. Evaluation workshop with community stakeholders
  7. Dissemination of park audit tool

- Study setting and participants:
  - 60+ parks in KCMO
  - 30+ representatives from public health, planning, youth agencies, legislators, parks and recreation, community members, etc.

Examining Neighborhood Park Influences on Physical Activity

- Parks are important neighborhood influences on physical activity, but not all parks are created equal
- Detailed audits of 60+ parks across Kansas City, Missouri (diverse mix of size, features, quality, geography, etc.)
- Assessment of neighborhood characteristics around parks using surveys and GIS (e.g., crime and traffic, density, connectivity, land use patterns, etc.)
- Mail survey with a random sample of 15-20 residents living within a half-mile of each park to assess physical activity and other health behaviors and outcomes
- Analyses related to associations between park proximity, features, quality, and neighborhood context and physical activity of children and adults

Summary and Recommendations

- Parks are important settings for physical activity
  - However, many visitors still sedentary
- Park proximity is important but so is the design of the park (facilities, amenities, area outside, etc.)
- More active facilities and amenities equates to more park-based physical activity
- Park visitors physical activity also influenced by a variety of social-psychological factors (e.g., motivations, constraints, attachment to the place)
- In many communities, parks (and the amenities within them) are not equitably distributed
- Pay attention to both provision and promotion of parks and park facilities
- Advocacy for parks

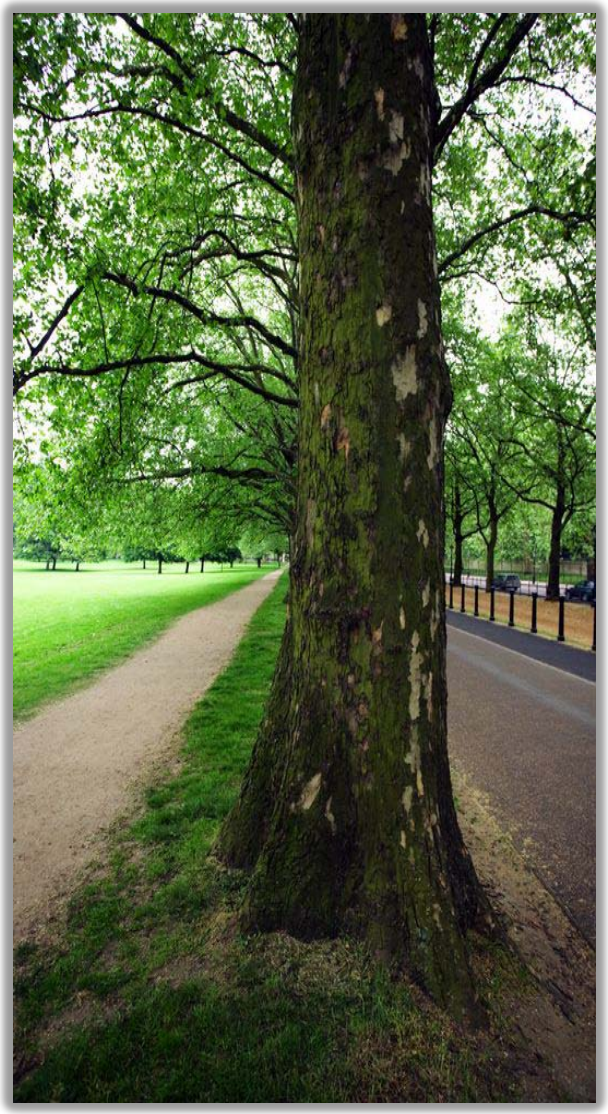
Presentation Overview

- Benefits of parks to communities

- Overview of parks and physical activity research
  - Benefits of parks
  - Park proximity
  - Park awareness
  - Park characteristics
  - Physical activity levels in parks
  - Parks and environmental justice

- Tools to examine physical activity in your parks
  - Example: Kansas City Parks & Physical Activity Study
    - Observation
    - Visitor Surveys
    - Park Audit

- **Discussion and Questions**



Your Parks and Physical Activity

- Are the parks in your town used for active purposes? Which ones? Why?
- How can we use the research and our knowledge of active park settings/behaviors to better leverage the activity-promoting potential of parks?

Please contact us for more info:

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