

Assessing Neighborhood Environments to Improve Physical Activity & Health

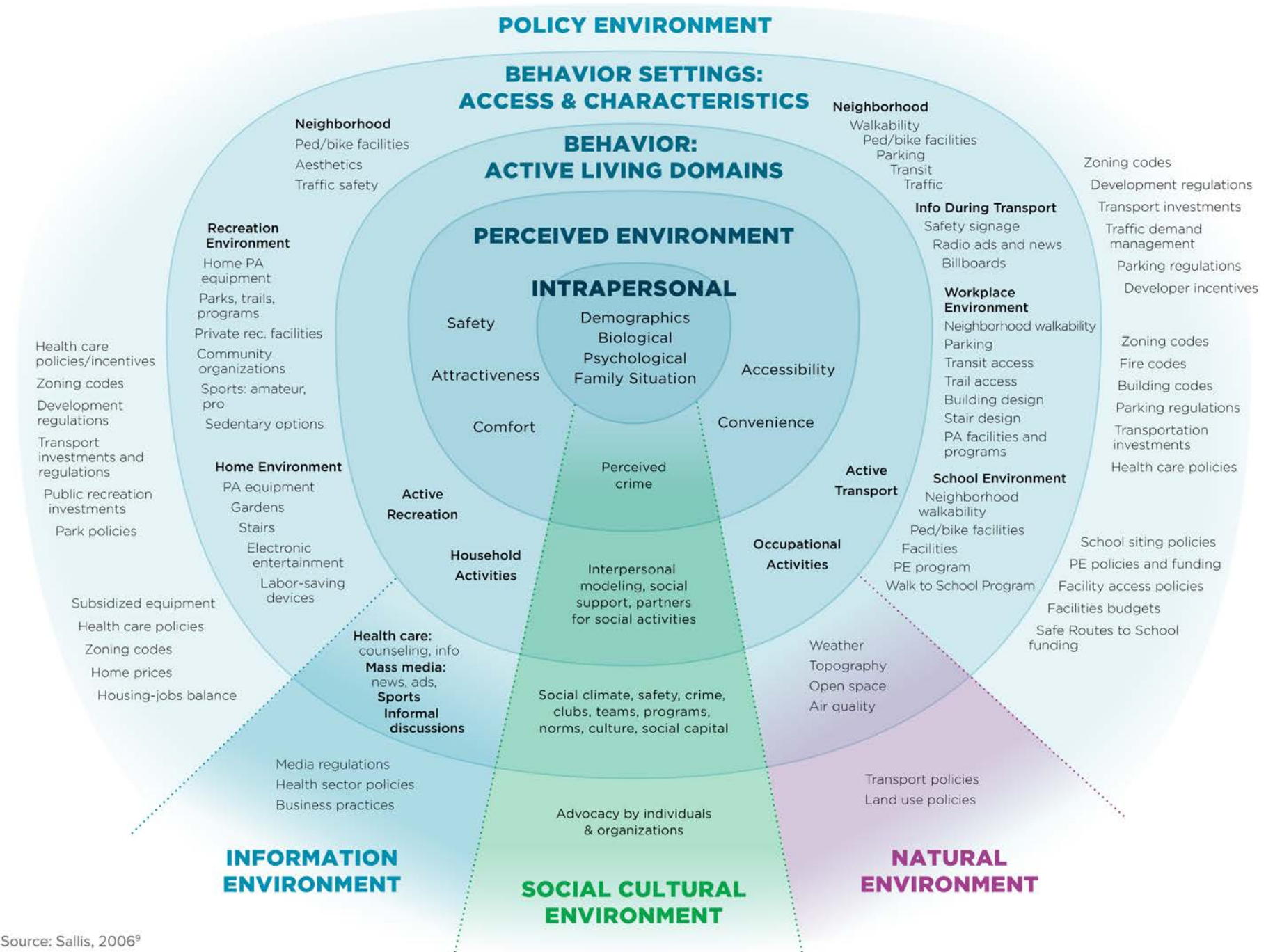
Weighing In Quarterly Meeting

June 1, 2017

Presentation Outline

- Neighborhood built environment and health
- Measuring the neighborhood built environment
- Measurement resources
- Selecting and adapting measures
- Measurement support
- Measurement in action

Figure 2: Ecological Model of Active Living

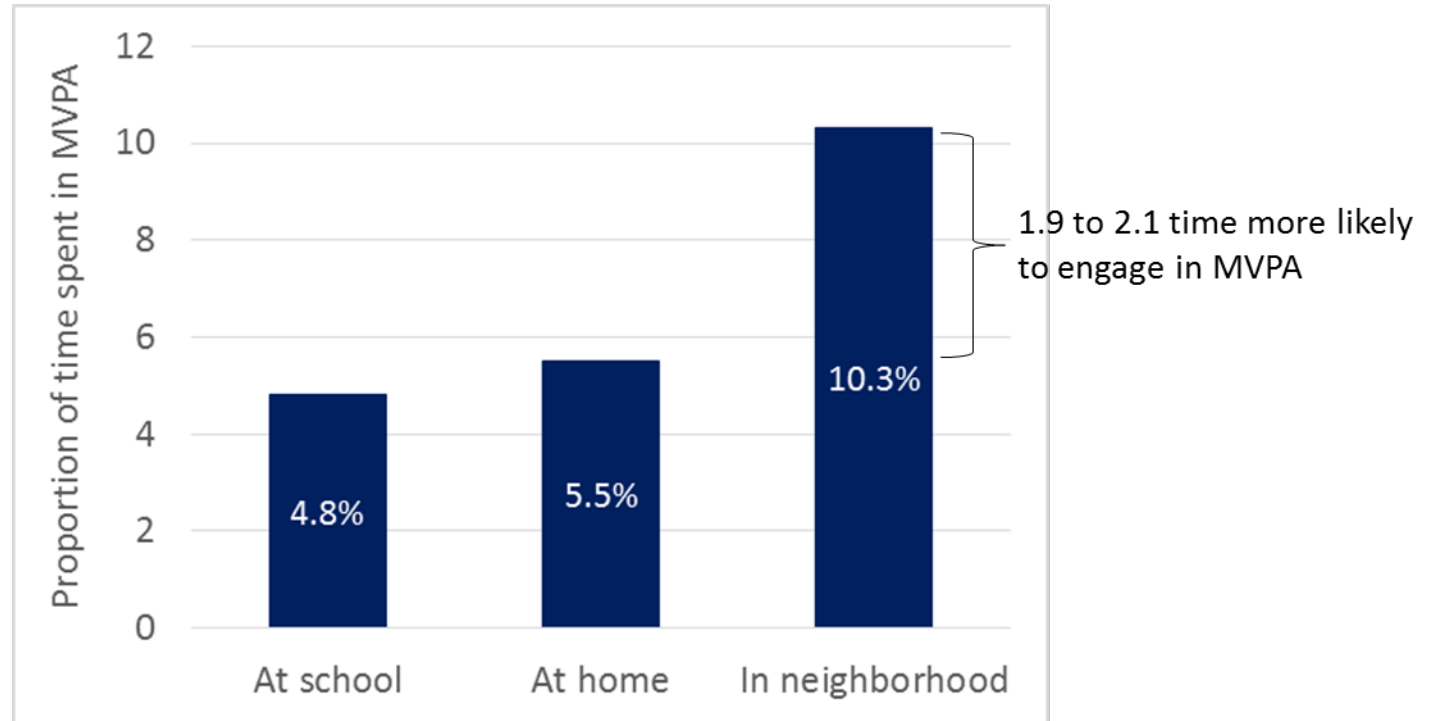
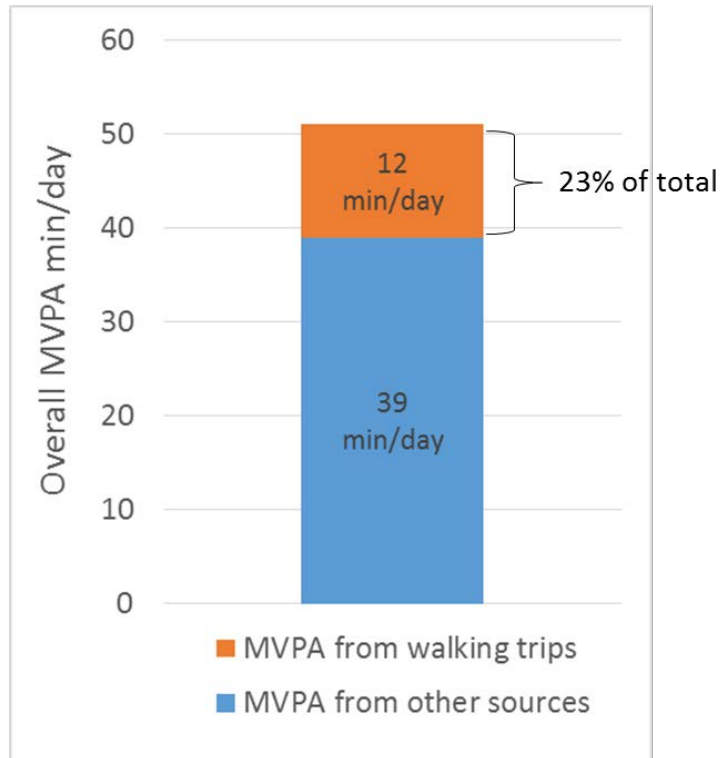


Source: Sallis, 2006⁹

The Role of Neighborhoods in Physical Activity

Kids in walkable neighborhoods:

- Twice as much walking
- 15% less time in a vehicle



12-16 year olds
N = 574

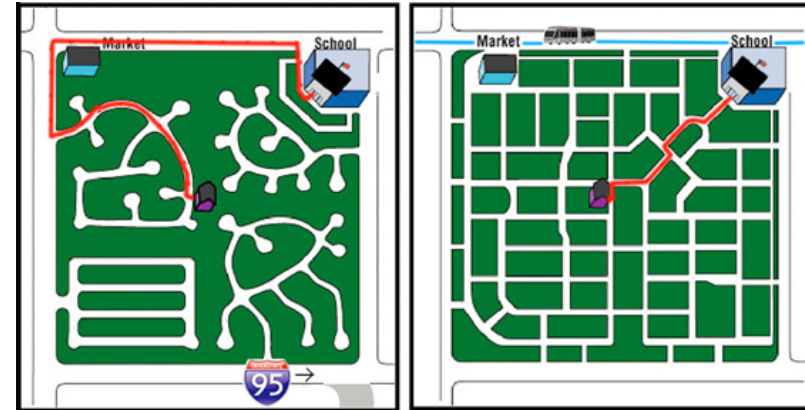
Carlson et al. 2016, Pediatrics
Carlson et al. 2015, Health & Place

Community Design and Physical Activity

Residential density



Street connectivity



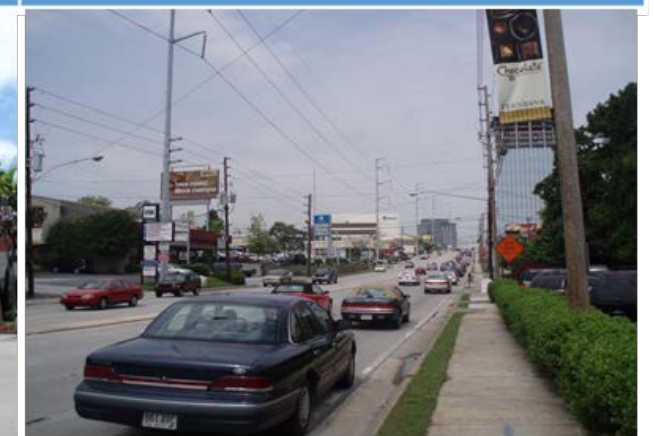
Mixed land use



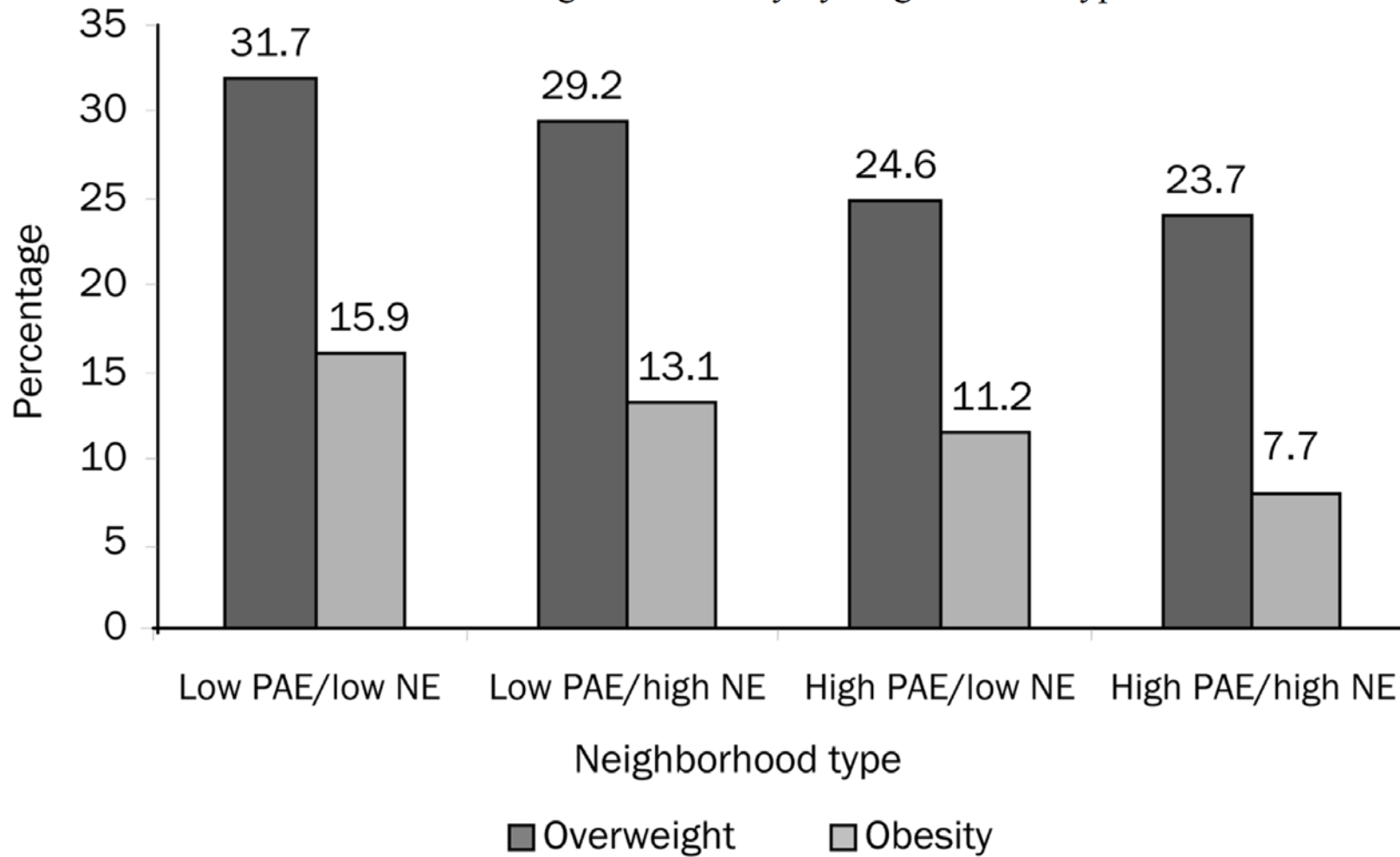
High Walkable



Low Walkable



Child overweight and obesity by neighborhood type



6-11 year olds

N = 730

PAE = physical activity environment

- Residential density (↑)
- Mixed land use (↑)
- Street connectivity (↑)
- Parks (↑)

NE = nutrition environment

- Supermarkets (↑)
- Fast-food outlets (↓)

Saelens et al. 2012

Am J Prev Med

Streetscape Features and Physical Activity

- Street segment features
 - Sidewalk presence and condition
 - Aesthetics/condition of properties
 - Speed limit
- Crossing/intersection features
 - Safe crossings
 - Curb ramps



6-16 year olds
N = 1655

Cain et al. 2014
Soc Sci & Med

Why Measure the Built Environment in KC?

- To identify features related to physical activity and health
 - Which improvements will have the greatest impacts on health?
- To education or engage community members and decision makers
 - Can engagement result in environmental improvements?
- To identify and prioritize specific environmental improvements
 - Which areas and features are in greatest need of improvement?
- To track/evaluate progress over time or due to an intervention
 - At what pace are we heading in the right direction?

Measures Selection Resources

National Collaborative for Childhood Obesity Research (NCCOR)



NCCOR Measures Registry

<http://www.nccor.org/nccor-tools/measures/>

NCCOR
National Collaborative on Childhood Obesity Research

News Funding Opportunities Members Contact

ABOUT PROJECTS **TOOLS** WEBINARS PUBLICATIONS EVENTS RESOURCES

HOME > TOOLS

CATALOGUE OF SURVEILLANCE SYSTEMS

MEASURES REGISTRY

MEASURES REGISTRY USER GUIDES

REGISTRY OF STUDIES

SNAP-ED

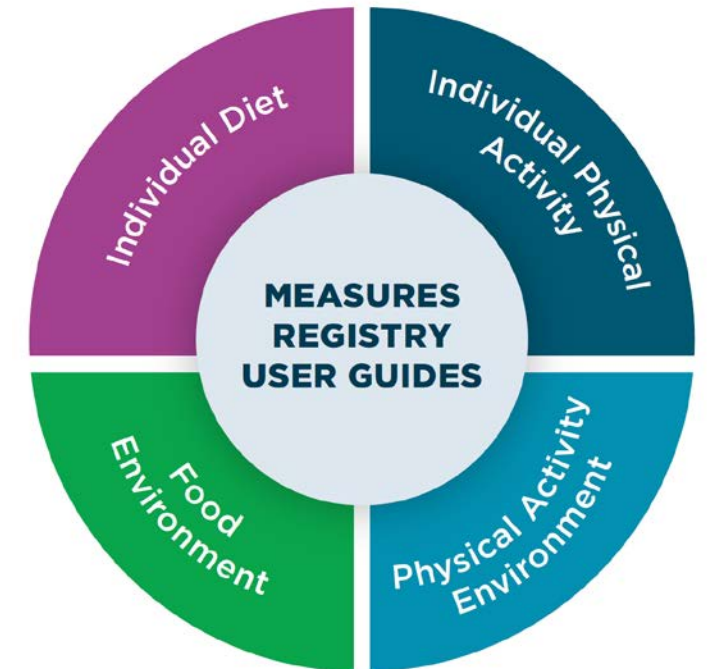
YOUTH COMPENDIUM OF PHYSICAL ACTIVITIES

Measures Registry

The Measures Registry is a searchable database of diet and physical activity measures relevant to childhood obesity research. Its purpose is to standardize use of common measures and research methods across childhood obesity research at the individual, community, and population levels.

Measures are tools and methodologies used to assess individuals' diet, physical activity, and the environments in which these behaviors occur. Examples of measures include questionnaires, instruments, diaries, logs, electronic devices, direct observations of people or environments, protocols, and analytic techniques.

SEARCH THE REGISTRY



Measures Covered in NCCOR Registry

SETTING	METHOD OF ASSESSMENT		
	GIS	OBSERVATION	QUESTIONNAIRE
Community design	X		
Transportation system			X
Streetscapes		X	
Trails			
Parks		X	X
Recreation			
Schools and child care		X	X
Homes		X	X
Workplaces			
Other buildings		X	X
Rural		X	X

NCCOR Measures Registry



Measures Registry

Filter options



Filter options [clear filter]

Search ⓘ

Contains

Domain ⓘ

- Individual Dietary Behavior (21)
- Food Environment (5)
- Individual Physical Activity Behavior (323)
- Physical Activity Environment (30)

Measure Type ⓘ

- GIS (2)
- 24-hour dietary recall or food frequency (1)
- Electronic monitor (91)
- Environmental observation (9)
- Questionnaire (165)
- Record or log (36)
- Other (49)

Age ⓘ

- 2 - 5 Years (76)
- 6 - 11 Years (203)
- 12 - 18 Years (177)
- Adults (23)

Context ⓘ

- Metro/Urban (208)
- Small Town/Rural (20)

Results

Showing all 323 matching measures

[Limit to 25 per page](#)

Measure Name ▲	First Author	Year Published
24-Hour Activity Diary	Rodriguez G	2002
3 Day Physical Activity Recall (3DPAR) Questionnaire for 8 to 13 Year Old Girls	Farr JN	2011
3-Day Activity Diary for Adolescents	Machado-Rodrigues AM	2012
3-Day Physical Activity Recall for 12 Year Olds	McMurray RG	2004
3-Day Self-Administered Physical Activity Checklist (SAPAC) for Adolescents	Affuso O	2011
6 Minute Walk Test for 5 to 12 Year Old Boys	Goemans N	2013
7-Day Diary on Children's Physical Activity and Sedentary Behavior for 3 to 5 Year Olds	Wen LM	2010
7-day physical activity questionnaire (SAPAO) for Adolescents	Ekelund U	2006
Accelerometers and Epoch Length Choice for 2 to 5 Year Olds	Vale S	2009
ActiGraph GT1M for 3 to 5 Year Olds	Obeid J	2011
ActiGraph GT1M for Toddlers	Trost SG	2012
ActiTrainer for 4 to 10 Year Olds	Ojiambo R	2011
Actical Accelerometer for 3 to 5 Year Olds	Pfeiffer KA	2006
Actical and Actigraph (Model 7164) Accelerometers	Esliger DW	2007
Actigraph 7164 and Actiwatch AW16 Accelerometers for 3 to 4 Year Olds	Kelly LA	2004
Actigraph 7164 and Actiwatch AW16 Accelerometers for 6 to 16 Year Olds	Puyau MR	2002
Actigraph Accelerometer 7164 for 11 to 15 Year Olds	Norman GJ	2006

Active Living Research

http://activelivingresearch.org/

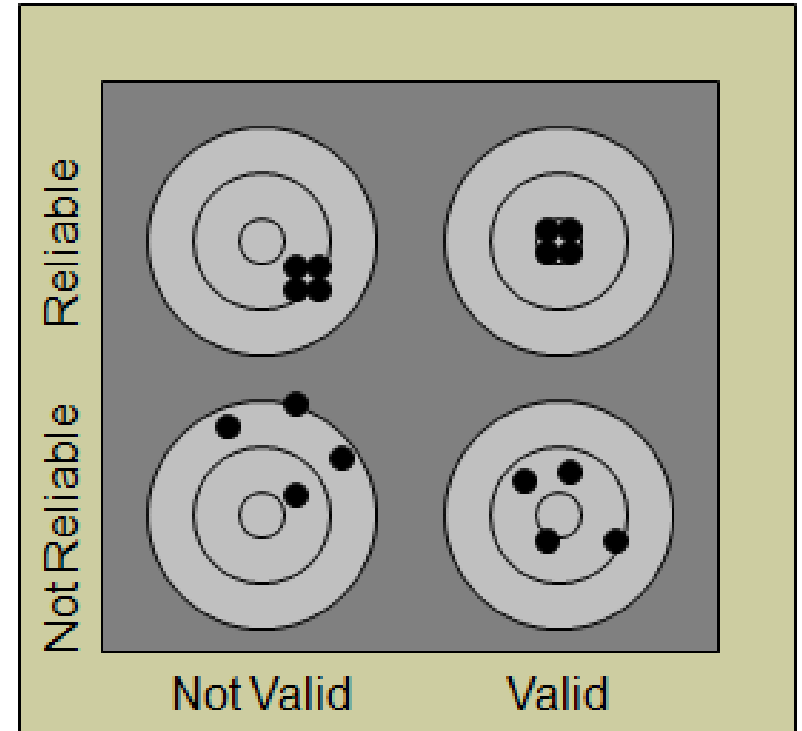
The screenshot shows a web browser window displaying the search results page of the Active Living Research website. The browser's address bar shows the URL: `activelivingresearch.org/search/site?f[0]=bundle%3Acontent_tools_and_measures`. The website header includes navigation links for 'RESOURCES FOR' (Advocates, Practitioners, Policy-makers, Educators, Media) and 'CONTACT US'. The Active Living Research logo is prominently displayed, along with a search bar and social media icons for Facebook, Twitter, LinkedIn, YouTube, and RSS. A horizontal menu below the logo contains categories: 'ACTIVE LIVING TOPICS', 'TOOLS & RESOURCES', 'NEWS & EVENTS', 'FOR GRANTEES & RESEARCHERS', 'CONSULTING & ABOUT US', and 'MOVE! BLOG'. A large green search bar with the text 'ENTER TERMS' and a 'SEARCH' button is present, accompanied by 'Like 2', 'Tweet', and 'Share' buttons. The main content area is divided into 'REFINE SEARCH' and 'SHOWING ITEMS:'. The 'REFINE SEARCH' section has two columns: 'TOPIC' (Transportation: 21, Communities: 20, Parks & Recreation: 20, Schools: 8) and 'POPULATION' (Unspecified: 21, School-age Youth (K-12): 10, Adults: 2, African American: 1, Latino/Hispanic: 1, Lower-income Families: 1, Multiple Race/Ethnic Sample: 1, Preschool Youth: 1). The 'SHOWING ITEMS' section displays a list of search results, with the first two items visible: 1. 'Analytic Audit Tool and Checklist Audit Tool' (Document Type: Tools and Measures, Topics: Transportation, Roads and Streets, Pedestrian Facilities, Bike Facilities, Communities, Zoning and Mixed Land Use, Date: 2003) and 2. 'Systematic Pedestrian and Cycling Environmental Scan (SPACES) Instrument' (Document Type: Tools and Measures, Topics: Transportation, Pedestrian Facilities, Bike Facilities). Each item has a 'Share' button and a count of 1.

Considerations in Selecting Measures

- Project purpose
 - To educate or engage community members? –resident audit
 - To inform environmental improvement projects or priorities? –detailed audit
 - To evaluate if a project resulted in environmental changes? –case studies or surveillance system
- Burden to respondents and/or investigators
 - Will response rates be low if the tool is too long/burdensome?
 - Will important information be missed if tool is too brief?
- Comprehensiveness, specificity (breadth or depth)
 - Cover multiple constructs, or a specific construct in detail?
- Evidence of reliability and/or validity

Reliability and Validity

- Identifying if a measure is reliable
 - Survey/questionnaire: Have the same people complete the questionnaire twice over a two-week period, responses should be similar.
 - Audit tool: Have two raters audit the same feature, responses should be similar.
- Identifying if a measure is valid
 - Compare to a criterion measure if available; for measuring attitudes/perceptions and for environmental audits, reliability is often sufficient.



Measurement Support

- Consulting on measure selection and data collection
- Collecting and managing data
- Analyzing and interpreting data



Measurement in Action