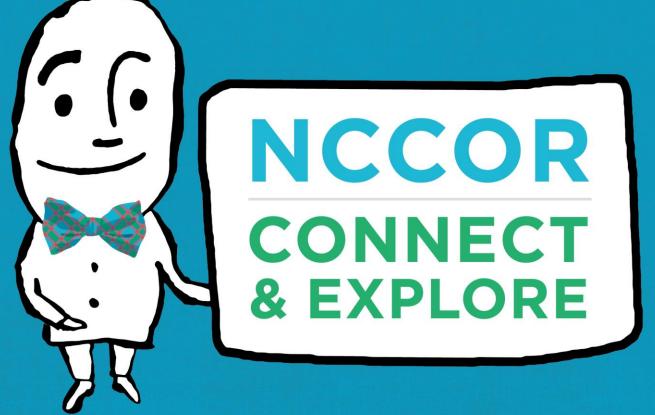
April 12, 2017



Connecting you with experts. Exploring the latest childhood obesity news and research.

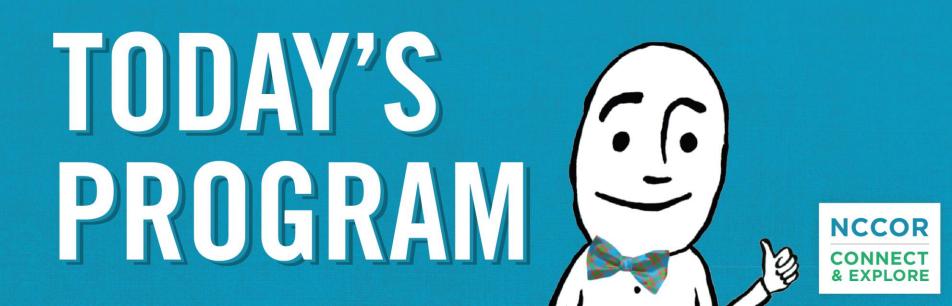
We will begin at 2:05 to allow participants time to join the webinar.



NATIONAL COLLABORATIVE ON CHILDHOOD OBESITY RESEARCH

1. Spotlight

- Measures Registry User Guides
 - Individual Physical Activity
 - Physical Activity Environment
- 2. One on One
- 3. Upcoming Events



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Today's Speakers



Elaine Arkin National Collaborative on Childhood Obesity Research



Gregory Welk, PhD Associate Professor,

Department of Kinesiology, Iowa State University



David Berrigan, PhD, MPH

Program Director, Health Behaviors Research Branch, National Cancer Institute, National Institutes of Health



James Morrow, Jr., PhD, FACSM, FNAK

Regents Professor Emeritus, Department of Kinesiology, Health Promotion, and Recreation, University of North Texas



Today's Speakers



Pedro Saint-Maurice, PhD

Postdoctoral Fellow, National Cancer Institute, National Institutes of Health



James Sallis, PhD

Distinguished Professor Emeritus, Department of Family Medicine and Public Health, University of California, San Diego.

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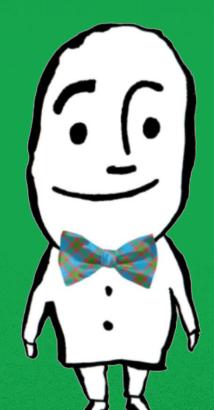
CONNECT & EXPLORE



Jordan Carlson, PhD

Director, Community Engaged Research, Children's Mercy Kansas City

INTERACTIVE POLL















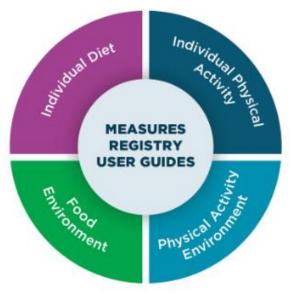
• Designed to:

- Provide an overview of measurement
- Describe general principles of measurement selection
- Present case studies to walk users through the process of using the Measures
 Registry to select appropriate measures

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 Direct researchers and practitioners to additional resources

- The User Guides cover the four domains of the Measures Registry:
 - Individual Diet
 - Food Environment
 - Individual Physical Activity
 - Physical Activity Environment



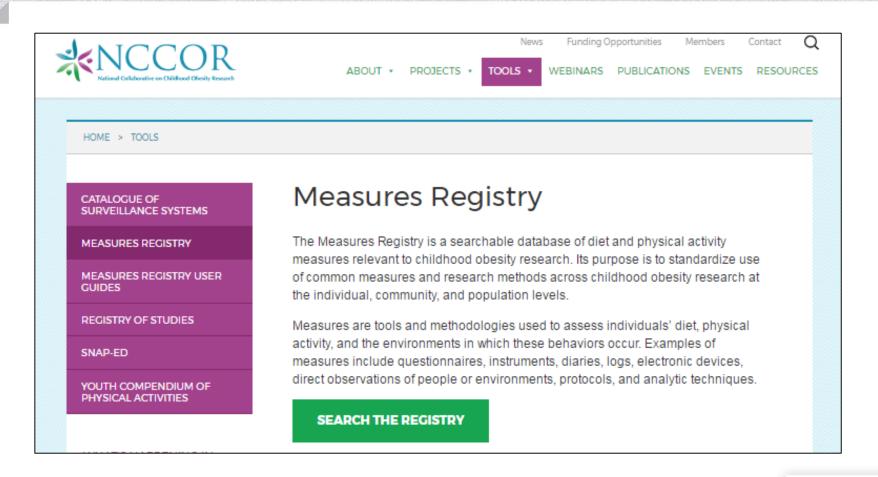
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 Aim to help move the field forward by fostering more consistent use of measures, which will allow for standardization, meta-analyses, and synthesis



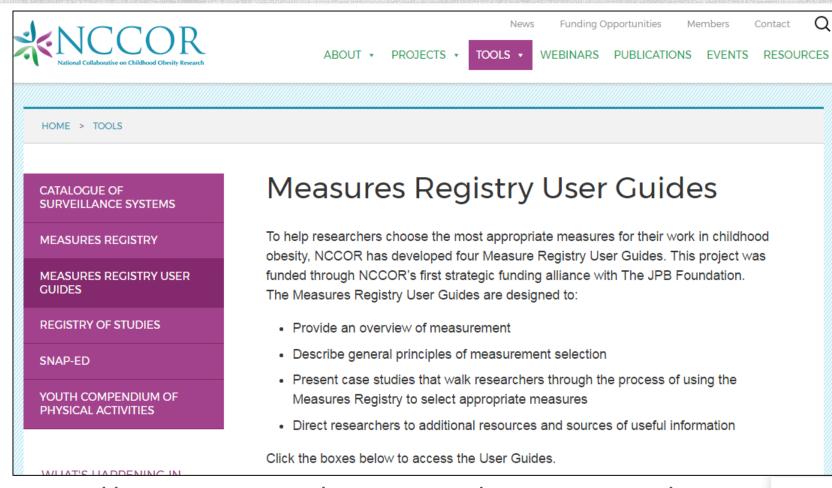
Measures Registry



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



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http://www.nccor.org/nccor-tools/mruserguides/

WHAT'S HAPPENING IN

NCCOR publishes new white paper on health, behavioral design, and the built environment

NCCOR's 2016 Annual Report: Expanding Our Outreach

NCCOR launches Measures Registry User Guides

NCCOR Year in Review: 2016

Assessing the Prevalence and Trends in Obesity: Navigating the Evidence Q&A Click the boxes below to access the User Guides.



Individual Diet



Food Environment

Physical Activity

Environment



Individual Physical Activity

EXPLORE

- · Case Studies for each User Guide
- · Teaching Resources for each User Guide
- NCCOR Measures Registry
- Feedback



Authors and Expert Panels

Food and Nutrition	Physical Activity	
1. Individual Diet	3. Individual Physical Activity	
Authors: Sharon Kirkpatrick and Amanda Raffoul (U. of Waterloo)	Authors: James Morrow, Jr. (U. of North Texas), Gregory Welk (Iowa State University), Pedro Saint-Maurice (NIH)	
2. Food Environment	4. Physical Activity Environment	
Authors: Leslie Lytle and Allison Myers (U. of North Carolina at Chapel Hill)	Authors: Jordan Carlson and Kelsey Dean (Children's Mercy Kansas City), James Sallis (UC San Diego)	
 Food and Nutrition Expert Panel Alice Ammerman, DrPH, RD Carol Boushey, PhD, MPH, RD 	 Physical Activity Expert Panel Genevieve Dunton, PhD, MPH Patty Freedson, PhD 	
• Karen Webb, PhD, MPH	• Brian Saelens, PhD	NCCOF
 Gail Woodward-Lopez, MPH, RD 		& EXPLOR

Measures Registry User Guides: Individual Physical Activity

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Measures Registry User Guide: Individual Physical Activity



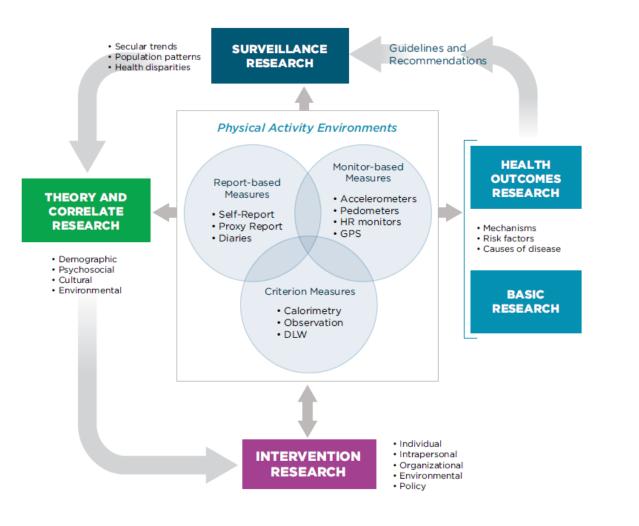
Greg Welk, Jim Morrow, and Pedro Saint-Maurice

Need for Accurate Estimates of Individual Physical Activity Behavior

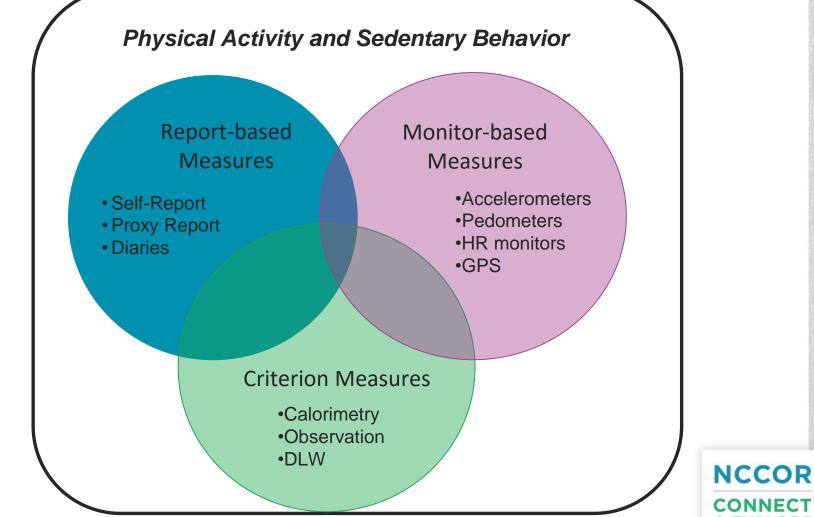
- To understand physiological mechanisms underlying adaptations to PA
- To understand amount of PA needed for health
- To monitor patterns and trends in PA
- To identify correlates of PA and to test theories of PA behavior
- To evaluate effectiveness of interventions designed to change PA



Behavioral Epidemiology Framework



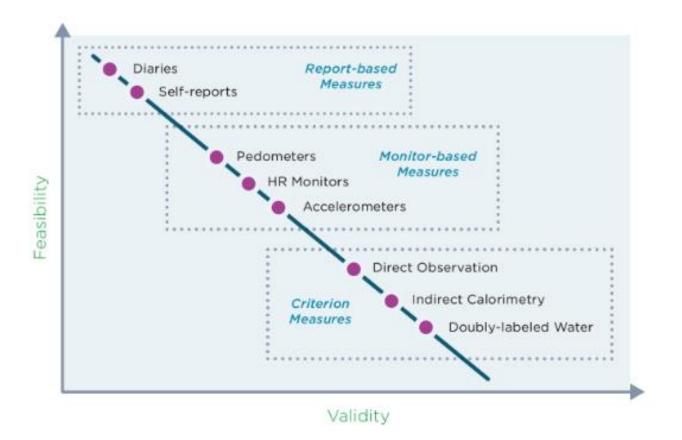
Overview of Major Categories of Physical Activity Measures



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Feasibility/Validity Continuum

Figure 5a: Physical Activity Assessment Tools and Their Relative Positions on the Feasibility/Validity Continuum

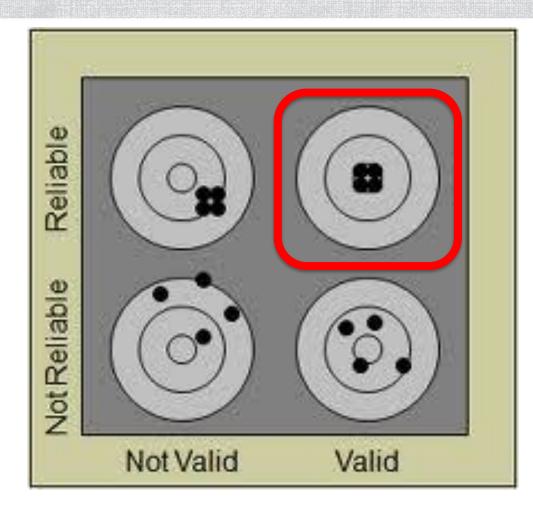




Principles of Measurement and Evaluation



Distinctions between Reliability and Validity



Reliability – Consistency of Measurement

	Inter-rater	Test-retest	Internal consistency
Definition for environmental measures	The extent to which measurements are repeatable between two or more evaluators	The extent to which measurements are repeatable over time	The extent to which items within a scale are correlated
Measure/method	Correlation coefficient; Cohen's kappa	Correlation coefficient; subtracting 1 – r = estimate of random error	Cronbach's alpha; Internal consistency



Validity – Truthfulness of Measurement

	Criterion	Face	Construct	Content
Definition for environmental measures	The extent to which the measure agrees with an external standard measure or a more accurate instrument	The extent to which the instrument appears to be measuring what it is supposed to measure	The extent to which the measure "behaves" in a way consistent with theoretical hypotheses	The extent to which an instrument samples items from the full breadth of the content desired
Measure/ method	Correlation with some other valid measure	Expert judge review; not statistically evaluated	Correlation with other measures in ways that make sense	Expert judgment or factor analysis

Summary of Validity Indices Used in Physical Activity Research

Continuous Variables (e.g., Minutes)	Categorical Variables (e.g., Meets PAG)	
 Pearson Product Momer 	• Proportion of Agreement	
 Test of Mean Differences 	• Kappa	
 Bland Altman 	Sensitivity	
 Standard Error of Estimate 	Specificity	
	NCCO	

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& FXPI OPF

Distinctions between Individual- and Grouplevel Estimation

- Many papers cited in the Measures Registry may use correlations to reflect validity. This is just an indicator of the association and not indicative of accuracy of estimates.
- Papers may also report "total error", a group-level statistic. A more useful indicator of individual error is computed as the Mean Absolute Percent Error (MAPE)



Measurement Issues in Health Outcomes Research

- Analyses often use categorical variables (for calculation of odds ratios or relative risk)
- Large sample sizes compensate for low precision of measures
- Stronger measures would provide greater power to detect effects (i.e., studies *likely underestimate the potency of physical activity*)



Measurement Issues in Surveillance Research

- Need to measure a lot of people efficiently
- Self-report or interviewer-administered instruments are common, but objective measures are now available
- Small differences in wording of questions can lead to large differences in responses
- Lack of equivalence among different
 instruments plagues research
- Need to assess absolute amounts of PA

Measurement Issues for PA Intervention Research

- Ensure outcome measure is sensitive to change
- Outcomes must be measured accurately to ensure sufficient power to detect change
 - Power calculations are needed to determine sample based on the size of effect to detect



MEASURES REGISTRY

Barriers to Walking for Physical Activity

Abstract At A Glance Study Design

n How To Use

Validity (3)

Reliability (6)

Citation

Dunton GF, Schneider M. Perceived barriers to walking for physical activity. Prev Chronic Dis 2006 Oct;3(4):A116. Epub 2006 Sep 15.

Abstract

INTRODUCTION: Although the health benefits of walking for physical activity have received increasing research attention, barriers specific to walking are not well understood. In this study, questions to measure barriers to walking for physical activity were developed and tested among college students. The factor structure, test-retest and internal consistency reliability, and discriminant and criterion validity of the perceived barriers were evaluated.

METHODS: A total of 305 undergraduate students participated. Participants had a mean age (+/- SD) of 20.6 (+/- 3.02) years, and 70.3% were female. Participants responded to a questionnaire assessing barriers specific to walking for physical activity. Perceived barriers to vigorous exercise, walking for transportation and recreation, and participation in lifestyle activities (such as taking the stairs instead of the elevator) were also assessed. Subsamples completed the walking barriers instrument a second time after 5 days in order to determine test-retest reliability (n = 104) and wore an accelerometer to measure moderate-intensity physical activity (n = 85).

RESULTS: Factor analyses confirmed the existence of three factors underlying the perceived barriers to walking questions: appearance (four items), footwear (three items), and situation (three items). Appearance and situational barriers demonstrated acceptable reliability, discriminant validity, and relations with physical activity criteria. After we controlled for barriers to vigorous exercise, appearance and situational barriers to walking explained additional variation in objectively-measured moderate physical activity.

CONCLUSION: The prediction of walking for physical activity, especially walking that is unstructured and spontaneous, may be improved by considering appearance and situational barriers. Assessing barriers specific to walking may have important implications for interventions targeting walking as means for engaging in physical activity.

Full Text

not available

Measure last modified : 07/13/2016 12:21 PM





Measurement in Action



List of Included Case Studies

- Case Study 1: Examining the Independent and Joint Associations of Physical Activity and Sedentary Behavior on Body Mass Index Among Middle and High School Students
- Case Study 2: Determining Compliance with Physical Activity Recommendations Across Different Grade Levels
- Case Study 3: Identifying Predisposing Factors for Active Commuting in Elementary School Children Who Live in Urban and Suburban Settings
- Case Study 4: Testing the Potential of a New Recess-Based Physical Activity Program Designed to Increase the Time Children Spend in MVPA During Recess



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Case Study 2: **Determining Compliance with Physical Activity Recommendations Across Different Grade Levels** (Surveillance Research)



Case Study 2: Background

PA outcome:

- Percentage of youth accumulating 60 minutes of MVPA per day
 - At least 30 minutes of activity accumulated at school

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Case Study 2: Considerations

- Age appropriate measure (8-18yrs):
 - Any of the measures in the Measures Registry
- A measure that captures the context of PA:
 Self-reports and diaries
- Favor feasibility and educational value:
 - Self-reports need to be considered carefully
 - Diaries can present challenges for young children



Case Study 2: Measures Selection

PA measure:

 Data collected using a web-based selfreport



Case Study 2: Summary Table

Title: Determining Compliance with Physical Activity Recommendations Across Different Grade Levels

Type of Case Study	Surveillance Research	
Background	 Youth should accumulate at least 30 minutes/day of MVPA in the school setting The project examined the proportion of youth meeting the recommended guidelines for PA 	e
Considerations	 A measure that captures the various dimensions and domains or physical activity 	f
Measure Selection	 A measure that captures the context of PA Favor feasibility over accuracy The assessment needs to provide educational value Suggest using a web-based version of a self-report 	
	NC	COR

NCCOR Measures Registry

Filter options -

MCCOR MEASURES REGISTRY

Measures Registry

Filter options		
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)

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 2011 Farr JN Old Girls 3-Day Activity Diary for Adolescents Machado-2012 Rodrigues AM 3-Day Physical Activity Recall for 12 Year Olds McMurray RG 2004 3-Day Self-Administered Physical Activity Checklist (SAPAC) for Affuso O 2011 Adolescents 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 Wen LM 2010 for 3 to 5 Year Olds 7-day physical activity questionnaire (SAPAQ) 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 Pfeiffer KA Actical Accelerometer for 3 to 5 Year Olds 2006 Actical and Actigraph (Model 7164) Accelerometers Esliger DW 2007 Actigraph 7164 and Actiwatch AW16 Accelerometers for 3 to 4 Year Kelly LA 2004 Olds Actigraph 7164 and Actiwatch AW16 Accelerometers for 6 to 16 Year Puyau MR 2002 <u>Olds</u> Actigraph Accelerometer 7164 for 11 to 15 Year Olds Norman G1 2006

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Conclusions

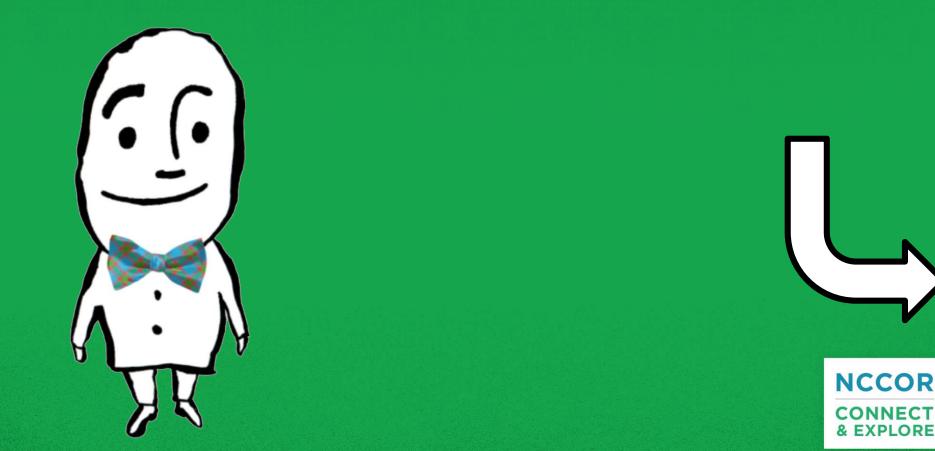
- The Behavioral Epidemiology Framework directly influences measurement decisions in PA research
- Measurement issues of reliability and validity are paramount
- The Feasibility/Validity Continuum impacts
 tool selection

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 Case studies provide illustrations of considerations in instrument selection

QUESTIONS?

Please type your question(s) in the chat box located on the right.



Measures Registry User Guides: Physical Activity Environment

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Measures Registry User Guide: Physical Activity Environment



Jordan Carlson and Jim Sallis



Measuring Physical Activity Environment



Why study Physical Activity Environments?

- Multiple settings are important for physical activity, including neighborhoods, parks/recreation, schools, and homes
- Built environments within each setting can support or inhibit physical activity
- Measuring physical activity environments can inform intervention strategies and support evaluation for both research and practice
- Many measures are in the Measures Registry

NCCOR CONNECT & EXPLORE Table 1. Measures with evidence of reliability and/or validity are available for many physical activity settings

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

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Levels of Environment Attributes

- "Macro-scale" attributes describe the layout of communities (connectivity, land use).
- "Micro-scale" attributes indicate the design of a setting (streetscape, park, building).
- "Social" environments include people in the environment and evidence of people's behavior (safety, social disorder).



Proximity, Accessibility, and Quality

- These dimensions of attributes can be assessed
 - Proximity presence, absence, or distance to an environmental feature.
 - Accessibility the ease of getting to the feature. This considers barriers (freeways) or quality of pedestrian/bicycle connections.
 - Quality ratings of a feature's design, aesthetics, appeal, condition, ease of use, or safety.



Measurement in Action



Introduction to Case Studies

- Case studies show the measures selection process in action.
- Considerations in measures selection include:
 - Project purpose
 - Evidence of reliability and/or validity
 - Burden to respondents and/or investigators

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- Comprehensiveness and specificity

Case Study 1: Improving Parks and Streetscapes around Schools (Intervention Planning)



Case Study 1: Background

- A local bicycle and pedestrian advocacy organization is working with the city planning department to improve environments around schools to support active living.
- The organization plans to apply for grant funding to support specific environmental improvements and would like the improvement targets to be identified through a community needs assessment.
- Their goal is to identify specific locations and types of improvements for which to seek funding.

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Case Study 1: Considerations

- Target environments known to be related to physical activity in youth
- Focus on attributes that would be feasible to modify during the 2-year grant period
- Involve community members in project; thus measure needs to be brief and require little training
- Use questionnaire, GIS, or audit tool



Case Study 1: Measures Selection

- "Physical Activity Environments" and "Environmental Observation" are selected as filter options in the registry.
- "Street" and "Park" are used as search terms.
- "Compare" check box helps narrow results.
- After reviewing the measures results, they select:
 - Street Audit Tool: Active Neighborhood Checklist
 - Park Audit Tool: a subset of the CPAT park audit tool



Case Study 1: Summary Table

Title: Improving Parks and Streetscapes Around Schools

Type of Case Study	Intervention Planning
Background	Improving streetscapes around schools and facilities within parks to support active living
Considerations	Need brief, low-burden measures that can be used by community members
Measure Selection	Streetscape and park audit tools are selected because they can identify environmental features that can be improved in a short amount of time



Case Study 3: Evaluating Changes Resulting from Streetscape Neighborhood Renovation Projects (Intervention Evaluation)



Case Study 3: Background

- A redevelopment grant is awarded to a city with special emphasis on pedestrianoriented renovation projects through the city's main urban corridor.
- A project team would like to evaluate the extent to which the grant results in improvements in streetscape features related to physical activity.

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Case Study 3: Considerations

- Due to the project being focused on streetscape features, the team narrows search to streetscape self-report and audit tools
- Construct validity (relation to physical activity) is especially important
- Measure Options:
 - Self-reports? Lack specificity
 - Audit tools? Need to be sensitive to change given the 1-year timeline



Case Study 3: Measures Selection

- Registry results are filtered to "Physical Activity Environments" and "Environmental Observation"
- "Street" is used as a search term
- Simple checklists are ruled out because high detail/specificity is desired
- Use "Compare" check box to compare measures
- Measures chosen:
 - Specific items and scales from the Irvine-Minnesota Inventory (IMI) are selected based on their consistent associations with physical activity in previous research and their ability to be affected over a 1-year time frame.

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Case Study 3: Summary Table

Title: Evaluating Changes Resulting from Streetscape Neighborhood Renovation Projects

Type of Case Study	Intervention Evaluation
Background	Evaluate streetscape improvements during 1-year urban renovation grant
Considerations	Focused on streetscapes, related to physical activity, and sensitive to change
Measure Selection	Irvine-Minnesota Inventory (IMI) is selected because of its consistent associations with physical activity and likelihood of being sensitive to change

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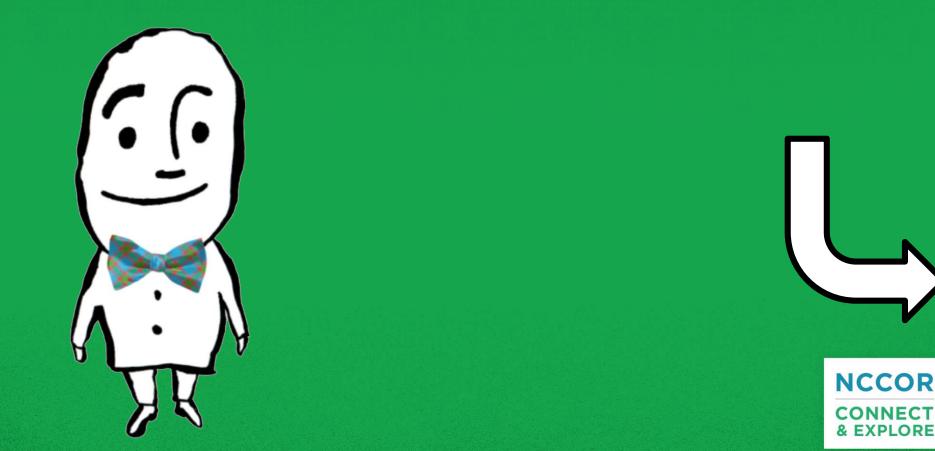
Conclusions

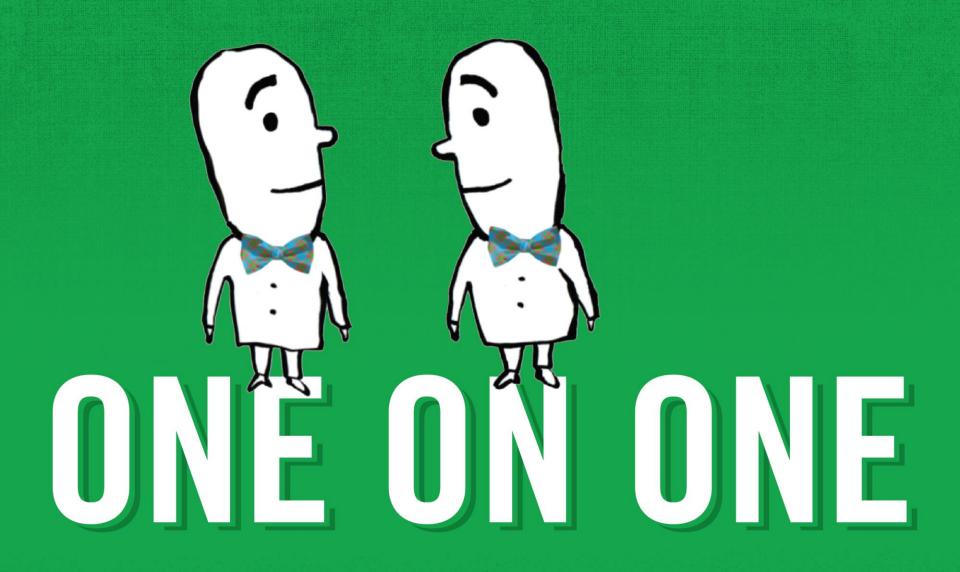
- The expanding field of physical activity environment research can make it difficult to select appropriate measures from the many that are available.
- NCCOR Measures Registry and User Guides can facilitate measure selection for research or practice.
- We hope the Measures Registry and Guides will lead to improved research and practice that will accelerate movement towards activity friendly environments.



QUESTIONS?

Please type your question(s) in the chat box located on the right.







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 - Hot off the Presses: A Revised Youth
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 May 31, 2017 – June 2, 2017

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Health, Behavioral Design, and the Built Environment White Paper

- Discusses use of behavioral design strategies and approaches to foster healthy eating and active living
- Encourages childhood obesity researchers and practitioners to consider the role of behavioral design in their work and use it for research and practice

XINCCOR

Health, Behavioral Design, and the Built Environment White Paper

EXECUTIVE SUMMARY

Purpose of the Health, Behavioral Design, and the Built Environment Project The National Collaborative on Childhood Obesity Research (NCCOR) brings together four of the leading ealth research funders in the United States-the Centers for Disease Control and Prevention (CDC), the National Institutes of Health (NIH), the Robert Wood Johnson Foundation (RWJF), and the U.S. Department of Agriculture (USDA)-to address the problem of childhood obesity in America. In 2014. NCCOR initiated the Health. Behavioral Design, and Built Environment Project in recognition of an important knowledge gap, namely, how do specific aspects of the built environment influence healthy living? A series of meetings in 2015–2016 brought together a multidisciplinary group of experts to discuss methods and evidence on applying behavioral design principles to foster active living and healthy eating, and to inform the development of this white paper. This Project seeks to enhance the ability to understand, translate and operationalize strategies that alter the human experience with the natural and built environment for the advancement of public health. The purpose of this paper is to provide an overview of behavioral design, describe and consider the conceptual domains and their relevance to behavioral design, guide research and practice to develop applications that enable and promote healthier behaviors amona children, and stimulate further discourse on the application of behavioral desian through dissemination.

The Project took a domain-level approach, inclusive of art, philosophy, political science, science, and spirituality, to draw core principles and theories from diverse disciplines to develop a framework for considering and applying behavioral design strategies to promote healthy eating and active living. Specifically, the principles and theories

of design and human propensities and behavior guided the framework development. With respect to the design arena, this white paper draws from fields of study and practice that construct, organize, and present the physical and informational world, such as art, architecture, and community design fields. With respect to the human behavior and psychology arena, the paper considers the theories of human behavior and cognition, such as conscious, reasoned behavior, automatic thinking, and social thinking. While the existence of the agent (i.e., individuals or groups of people) within the environmenta sphere of influence is generally acknowledged in public health efforts, the ability to effectively create and apply strategies to enhance health promotion requires an increased consideration of the agent and environment interface. Considering behavioral design principles from theoretical concepts to practice application may facilitate a more comprehensive understanding and ability to influence how the agency-exposure interaction produces experiences. It also considers the exposure aspects that influence the agent and the inherent reciprocity and conditioning perpetuated by that interaction. Given that few such interactions are health-neutral, advancement in behavioral design can incentivize the design and building process to maintain health as a proximate performance outcome

Key Aspects to Consider for Behavioral Design Relevant to Active Living and Healthy Eating

Nerevant to Active Living and nearing Josting The bulk workly whether intendional or not, influences the human experience. The lack do behavioral facus may be due to competing requirements (le., sime, cost, safety, esthetics), but also may be due, in part, to a lack of awareness or interest in how the designed and constructed environments influence people. If behavioral outcomes are desired and attempted, limitations exist

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Acknowledgments: Project Team

NCCOR Members

Rachel Ballard, MD, MPH David Berrigan, PhD, MPH (co-lead) Stephanie George, PhD, MPH Jill Reedy, PhD, MPH, RD (co-lead)

NCCOR Coordinating Center

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Other reviewers:

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FURTHER QUESTIONS?

Other questions about NCCOR or upcoming activities?

Email the NCCOR Coordinating Center nccor@fhi360.org





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Connect & Explore SNAP-Ed Evaluation Framework Q&A

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Three ways NCCOR is accelerating progress to reduce Childhood Obesity

NCCOR Childhood Obesity Declines -New RWUF Signs of Progress Data



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Connect & Explore

Mark your calendar for these upcoming Connect & Explore webinars!

NOV 10

Evaluating Health Care-Community Collaborations: Implications and Recommendations for the Field

Archived Webinars

Missed a webinar? Check out videos from past webinars.







THANK YOU!