

# Measures Registry User Guide: Individual Physical Activity Fact Sheet

Measurement is a fundamental component of all forms of research and it is certainly true for research on childhood obesity. A top priority for the National Collaborative on Childhood Obesity Research (NCCOR) is to encourage consistent use of high-quality, comparable measures and research methods across childhood obesity prevention and research.

NCCOR's [Measures Registry](#)—a free, online repository of articles about measures—helps achieve this aim. It is widely recognized as a key resource that gives researchers and practitioners access to detailed information on measures in one easy-to-search location. The Registry's measures focus on four domains that can influence childhood obesity on a population level (see Figure below).

Even with this resource, however, it can be challenging for users to choose the most appropriate measures for their work. To address this need, NCCOR developed the Measures Registry User Guides designed to:

- Provide an overview of measurement
- Describe general principles of measurement selection
- Present case studies that walk users through the process of using the Measures Registry to select appropriate measures
- Direct researchers and practitioners to additional resources and sources of useful information

**Figure:** NCCOR Measures Registry User Guides



## NCCOR: WORKING TOGETHER TO REVERSE CHILDHOOD OBESITY

NCCOR is a partnership of the four leading funders of childhood obesity research: 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). These four leaders joined forces in 2008 to continually assess the needs in childhood obesity research, develop joint projects to address gaps and make strategic advancements, and work together to generate fresh and synergetic ideas to reduce childhood obesity. For more information about NCCOR, visit [www.nccor.org](http://www.nccor.org).

## Overview of the Individual Physical Activity Measures Registry User Guide

Accurate estimates of physical activity are essential to:

- Advance research on the health benefits of physical activity
- Understand patterns and correlates that influence physical activity behavior
- Evaluate interventions designed to promote physical activity, improve health, or reduce obesity

The goal of this User Guide is to help researchers and practitioners

- Make informed decisions when selecting and using measurement tools to assess physical activity behaviors in youth
- Understand measurement issues that should be considered when selecting and using physical activity measures in research and other evaluation contexts

The Measures Registry User Guides are available at [www.nccor.org/mruserguides](http://www.nccor.org/mruserguides). An informational webinar describing the Individual Physical Activity and Physical Activity Environment Guides is available at [www.nccor.org/archived-webinars/mruserguides](http://www.nccor.org/archived-webinars/mruserguides).

## CASE STUDY DETERMINING COMPLIANCE WITH PHYSICAL ACTIVITY RECOMMENDATIONS ACROSS DIFFERENT GRADE LEVELS

The following case study has been designed to illustrate considerations influencing the selection of the most appropriate measure(s) for a given study based on the research aim/question, study design, and other characteristics. (See the full User Guide for additional case studies.)

### Background

Schools are considered the ideal setting to educate youth about physical activity and healthy lifestyles. National recommendations indicate that youth should accumulate at least 30 minutes/day of Moderate to Vigorous Physical Activity (MVPA) in the school-setting (150 minutes per week). However, it is difficult to determine compliance with these guidelines because of a lack of documented records. A team managing a large national research network plans a study to determine compliance with physical activity recommendations across different grade levels (i.e., elementary, middle, and high school). They are interested in determining what percentage of youth meet the public health goal of 60 minutes of MVPA per day and whether children are getting at least half of this activity at school. As a school-based project, they also want to ensure that the assessment provides an educational experience for both the students and the teachers.

### Considerations

This is a large project that will require a measure that is equally appropriate for children and adolescents. The measure needs to capture the frequency, duration, and intensity of physical activity and address most of the physical activity domains, particularly physical activity occurring at school.

The team recognizes that it needs a measure that is highly feasible but decides it can sacrifice individual-level accuracy so long as it has a measure that is relatively accurate at the group level. Feasibility is a priority in surveillance research (and in this particular project) because the team needs to rely on teachers to perform the assessments, while ensuring that data can be collected within a similar period of time (e.g., spring semester) to allow for direct comparisons between schools.

The team needs to include staff responsible for coordinating all the contacts with schools and facilitate the assessments. It also needs a measure that can provide immediate feedback

because the annual assessment was intentionally designed to educate students about the importance of physical activity and how to self-monitor their activity behaviors.

### Measure Selection

All the measures are suitable for children and adolescents, but the team needs to make a careful choice if they decide to use report-based measures because these can present challenges when administered to young children.

Indirect calorimetry, direct observation, activity monitors, heart rate monitors, self-reports, and diaries can all provide an estimate of time spent in MVPA. However, only self-reports and diaries can capture the context of physical activity and specifically partition daily activity accumulated at school and out-of-school. Activity at school can be estimated with activity monitors or heart rate measures if additional information is collected (e.g., school schedule).

Self-reports can easily be shared with schools throughout the country for assessment and be sent along with assessment instructions for teachers. A web-based self-report would be a particularly good option, while diaries can be less accurate and be difficult for young children to complete.

The scale of the project creates some challenges for resources and time. Self-reports allow for the collection of large amounts of data within a short time period so this is an advantage. This particular study will not require great human power to administer the self-report because the data will be collected by school staff (e.g., physical education teachers). Self-reports also can provide immediate feedback and therefore have unique educational value.

A wide variety of self-reports is available for children and adolescents, but they can be narrowed down once the Measures Registry filters are applied to include context-related physical activity and those that have demonstrated validity across different age groups (ages 8 to 18 years). A web-based version would be preferred and applying this filter would narrow the available self-reports even further. Pilot testing would require testing the web-based tool to determine, for example, how scores are saved (e.g., how the server saves the data) and how feedback is provided.