



Priority Statement Title: Clinical Measurement Toolbox: A Common Currency for Systematic Evaluation of Physical Function

Priority Statement Code: LF3B and LF5B

Domain: Body Structure and Function, Activity

Priority Statement

Background and Relevance

There is inadequate evidence that biomechanical measures are valid for use in clinically related research and practice. The majority of the measures have been developed years ago, have poor validation data, and lack sensitivity and specificity for use in clinical settings. Development of new measures and measurement techniques has been stifled. Over the past few years, the NIH has developed new “Toolbox” efforts to improve the research enterprise. These efforts include the NIH Toolbox for Neurological and Behavioral Functioning, the NINDS Toolbox for Executive Functioning, and the NIMH Toolbox to measure cognition in individuals with Schizophrenia. Those efforts have not focused on the areas of physical functioning nor have they been developed to improve clinical practice. A similar priority needs to be given to establish “a toolbox” of measures of physical function that reflect neurobiomechanical impairment. This entails including and validating current best theory based clinical measures and the development of new clinically accessible measures that are informative of biomechanical assessment in the laboratory.

Objectives

The overall objective is to develop and validate a common, publicly available set of measurement tools of physical function for researchers and clinicians. Such a set would enable comparison of research studies, communication between researchers and clinicians, accumulation of large data sets, and performance of meta analyses. To achieve this objective, the measurement tools must be both clinically relevant and biomechanically illustrative. The measurement tool should be tested, validated, and standardized in a large representative sample.

Recommended Actions

- Utilize feedback from various interdisciplinary stakeholders (e.g., survey a large sample of experts in biomechanical assessment, convene consensus conference, conduct a thorough review of existing measures) to identify a comprehensive set of measures of physical function to be included in a toolbox for physical functioning.
- Select current best clinical measures that have established clinical utility.
- Identify existing measurement gaps based on biomechanical principles and develop new clinically-accessible measures that are informative of biomechanical assessment in the laboratory.
- Conduct validation studies of measurement tools.
- Collect large standardization sample and develop comparative normative information.
- Continue validating the tools in different subject cohorts.



- Evaluate responsiveness to change to ensure the usefulness of the tools in clinical research.
- Establish a mechanism for improving, sustaining, and providing public access to the Toolbox for Physical Functioning.