

Cross-Site BCC Research Ideas Proposed for Supplemental Funding

Statement of primary research question:

Recent advances in electronics and computer technology have allowed for increased sophistication of the electronic and mechanical methods of measurement of activity. This has resulted in studies of activity and exercise behavior including multiple measures of activity, with the intent of triangulating these different methods (Durante & Ainsworth, 1996; Masse et al., 1998; Measurement of Moderate Physical Activity: Advances in Assessment Techniques, 2000; Sarkin, Nichols, Sallis & Calfas, 1998; Sims, Smith, Duffy & Hilton, 1999). Attempts to triangulate activity measures, or validate one type of measure against another have consistently demonstrated a weak relationship between these measures (Allison, Keller & Hutchinson, 1998; Leenders, Sherman & Nagaraja, 2000; McDermott et al., 2000; Sims et al., 2000; Sirard, Melanson & Freedson, 2000; Wareham & Rennie, 1998). Moreover, there is often significant participant burden while having to respond to numerous activity related questions and multiple surveys. The primary aims of this study, therefore, are to:

- (1) To examine the relationship between two commonly used survey measures in three different samples of older adults.
- (2) To explore the feasibility of completion of these two different surveys of activity for older adults.
- (3) To determine the validity of each measure and the ability of each measure to identify change over time.
- (4) To test three different measurement models of activity in healthy community dwelling older adults and older adults post hip fracture.
- (5) To establish the most parsimonious method of assessing activity/exercise in older adults.

Contribution of proposed activity to theory development/measurement enhancement .

There are a wide variety of methods available to measure activity in older adults. Unfortunately, each of these methods measures only a single aspect of overall activity, such as steps taken, movements in vertical planes, or subjective reports of activities. Of these, survey reports tend to be the most popular method of measurement due to cost and ease of administration. Unfortunately the reliability and validity of surveys is inconsistent and survey results frequently overestimate activity (Branch & Meyers, 1987; Dishman, Darracott & Lambert, 1992; Paffenberger, Blair, Lee & Hyde, 1993; Pols, Peeters, Kemper & Collette, 1996; Sims, Smith, Duffy & Hilton, 1999). This study will add to the current science of activity measurement in older adults by helping to establish the utility of these two surveys, as well as demonstrating a potentially more comprehensive way in which to conceptualize and measure activity in older individuals.

BCC's unique position to address this research question:

The BCC is in a unique position to address these research questions as the three studies within the BCC that are addressing behavioral change in older adults have: (1) intentionally used the same survey measures; and (2) each incorporated an objective measure of activity. While each of these studies uses different populations and different interventions, the models of activity developed for each study will help us determine which model, ie which group of measures, explains activity the best in an older population.

Specific research questions:

1. What is the relationship between the Yale Physical Activity Survey (YPAS) and the CHAMPS in three different samples of older adults, and is it consistent across the three groups?
2. Can three different groups of older adults consistently complete both the YPAS and the CHAMPS and what are the challenges noted during data collection?
3. Is there a statistically significant relationship between the YPAS and the CHAMPS with an objective measure of activity (accelerometer, pedometer or step activity monitor) and exercise logs.
4. Is the YPAS and the CHAMPS able to pick up change in activity over time in older adults in the three samples studies?
5. Which of the three models of measurement of activity explains this concept best with regard to older adults?
6. What is the most parsimonious way in which to measure activity in older adults?

Sites:

All three of the aging studies which include: Stanford: Abby King; University of Rhode Island: Phil Clark; and University of Maryland: Barbara Resnick.

Data:

At the onset of these three projects several common measures were identified to explore activity. This existing data will be used in this study. Specifically these measures include: The Yale Physical Activity Survey (YPAS) and The CHAMPS activity survey. In addition, objective data from the activity monitors used in each study will be utilized. The activity monitors includes the Step Activity Monitor, The Computer Science Applications Inc. (CSA), and the Yamax.

Time frame:

The proposed study will use both baseline and 12 month data to answer the research questions. All research questions can not be answered until all three studies have obtained their 12 month follow up data. It is anticipated that this will occur by January of 2003. Data analysis, however, can be initiated once baseline data are collected. In addition, the proposed study includes a qualitative interview to be done with those individuals who are collecting the survey data. This interview should be done following the completion of 12 month data collection to consider the experience of multiple experiences with the same measures over time. There may, for example, be a difference in the older adults' ability to complete either of the measures depending on where they are in the course of the study time frame, and/or concerns with repeat administration.

Budget:

Summary Budget

Expenses	Year 1 Amount
Personnel	
Salaries	62,245
Fringes	10,908
Subtotal	73,153
Operating Expenses	
Supplies	1,210
Travel	100
Other (subj. F & A)	2,725
Subtotal	4,036
Total Direct Costs	77,188
F & A (Indirect costs)	37,436
Total Costs	114,624