Objective Physical Activity Data
NHANES 2011-2014

The Challenges of Data Management, Processing, and Public Release

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NHANES Overview

Physical Activity Assessment

Accelerometer Challenges
Objective

To assess the health and nutritional status of adults and children in the United States
Sample

- Civilian, non-institutionalized household population in the United States
- All ages
- Oversample minorities
- Target: 5,000 individuals examined annually
National Health and Nutrition Examination Survey

Questionnaires, Datasets, and Related Documentation

- Continuous NHANES Data, Questionnaires and Related Documentation
  - Search Continuous NHANES Variables
  - NHANES 2013-2014
  - NHANES 2011-2012
  - NHANES 2009-2010
  - NHANES 2007-2008
  - NHANES 2005-2006
  - NHANES 2003-2004
  - NHANES 2001-2002
  - NHANES 1999-2000
- Prior to 1999 Data, Questionnaires, and Related Documentation
- Other NHANES Data
- Survey Methods
NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEYS

1960-1962 NHES I

1963-1965 NHES II

1966-1967 NHES III

1971-1975 NHANES I

1976-1980 NHANES II

1982-1984 NHANES II

1988-1994 NHANES III

1999-present Continuous NHANES

✪ = Accelerometers
Accelerometers

Publications by year with search terms ‘exercise or physical activity’ and ‘accelerometer or accelerometry,’ Scopus.com, accessed 3 January 2014.

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Accelerometers Can Inform…

Physical Activity

Sedentary Behavior

Sleep

Health & Wellbeing
Procedural Challenges

• Device
  – Which one?
  – Cost
  – Settings
    • Wear location
    • Sampling rate
    • Raw data vs counts
• Software system integration
• Wear protocol decisions
Data Management Challenges

• Content expertise needed
• Data processing
  – Disagreement in the field
  – Proprietary algorithms for raw data
• Computational resources
• Participant compliance
... More on Computational Resources

- 20,736,000 data points/day/person
- ~150 million data points/person
- ~7 TB of data in NHANES
Data Release Challenges

• Data release product
• Protecting confidentiality
• Hosting extensive data
Self-Report and/or Accelerometer?

- No one size fits all
- Not measuring the same thing
- Benefits and limitations of accelerometers
- Capacity and resources
Accelerometer Data Overviews


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