Improved Measures of Diet and Physical Activity for the Genes and Environment Initiative

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NIH Genes and Environment Initiative Exposure Biology Program

- **Improved Measures of Diet and Physical Activity for the Genes and Environment Initiative (GEI) (U01) -- RFA-CA-07-032**
- **Website: http://www.gei.nih.gov/exposurebiology**

NIEHS National Institute of Environmental Health Sciences
National Cancer Institute
NIDA National Institute on Drug Abuse
National Heart Lung and Blood Institute People Science Health
U.S. Department of Health and Human Services National Institutes of Health National Institute of Environmental Health Sciences

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- **Background**
  - **Diet and physical activity (PA) critical in health and disease risk**
  - **Historically, both measured via self-report**
  - **Prone to measurement error**
    - **…Bias**
    - **…Memory**
    - **…Cognitively difficult**
    - **…Respondent burden**
    - **…Databases**

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- **Dietary methods and their limitations**
  - **Records: burden, reactivity, lacks detail, multiple days required, literacy**
  - **24-hour recalls: memory, expense, multiple days required**
  - **Food frequency questionnaire: memory, cognitively difficult, lacks detail, literacy**
- **All methods subject to bias**
- **Biomarkers: only a few considered "reference" for intake**

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- **PA methods and their limitations**
  - **Records: burden, reactivity, quality**
  - **Motion monitors: generally locomotion only, miss upper body and load carrying**
  - **Heart rate monitors: affected by many factors at low activity levels (e.g., stress, caffeine), require individual calibration for precise expenditure measure**

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- **Available funding:**
  - **$16 million (total cost) for 4 years**
  - **6-8 new grants**
- **Key Dates:**
  - **Letters of Intent: December 11, 2006**
  - **Application Receipt Date: January 11, 2007**
  - **Earliest Anticipated Start Date: July 2007**

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- **Intent of diet and physical activity RFA**
  - **Development of new or refining of existing technologies to measure dietary intake or physical activity or both**
  - **Small scale validation expected**
  - **Encourage multidisciplinary research**

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- **Responsive: Physical Activity**
  - **Motion or physiologic sensors/monitors or combinations**
  - **Imaging methods**
  - **Cellular telephone and wireless technologies**
  - **Bioinformatics tools/database solutions**
  - **Ecological momentary assessment**
  - **Multidisciplinary research**

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- **Responsive: Diet**
  - **Technologies**
    - …sensors, scanning, and/or other measurement devices
    - …imaging techniques
    - …wireless technologies
    - …software and database applications
    - …refining existing computer, web-based, or PDA technologies
  - **Biomarkers**
    - …array of objective recovery biomarkers
  - **Multidisciplinary research**

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- **Not responsive:**
  - **Stand-alone validation projects**
  - **Devices not ready for application in large-scale population studies by end of funding**
  - **Slight adaptations of existing questionnaires or technologies**
  - **Food frequency questionnaires**
  - **Determinants of behavior**

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- **Milestones:**
  - **Yearly: well-described, quantitative, and scientifically justified milestones**
  - **NOT simply a restatement of specific aims**
  - **Specific quantitative benchmark parameters, timeline for development**
  - **Adjusted annually to incorporate scientific accomplishments/progress and recommendations of the Steering and Advisory Committees**
- **Applicability**
  - **Likelihood that project will produce field-deployable tools by end of funding period**
  - **Feasibility for population studies**

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- **Application details:**
  - **Paper application (PHS 398) *not* SF 424**
  - **Copies: to CSR with 2 additional copies to NCI**
  - **Appendix material: pdf format (send disk with paper copies to NCI)**
  - **Must include Data Sharing Plan**
  - **Human Subjects: address requirements of PHS 398**
  - **Detailed Budget (not modular): dates and amounts on face page must agree with info on application budget pages**