

## Funding Opportunity for Improving Diet And Physical Activity Assessment (R01/R21)

### Overview

Diet and physical activity are lifestyle and behavioral factors that play a role in the etiology and prevention of many chronic diseases, such as cancer, coronary heart disease, and overweight/obesity as well as in maintaining weight loss. Accurate longitudinal data on physical activity and dietary intake patterns would be especially helpful in understanding how these factors may impact on health and functional status over the human lifespan. Therefore, diet and physical activity are assessed for both surveillance and epidemiological/clinical research purposes.

The measurement of usual dietary intake or physical activity over varying intervals or in the past, by necessity, has relied on self-report instruments. Such reports are cognitively difficult for respondents, and are prone to varying degrees of measurement error depending on the time period considered, the ease of the instrument, and the characteristics of the respondents. Understanding and interpretation of instruments and the concepts they address may differ among population subgroups.

### Research Objectives

This FOA supports research pertinent to improving the measurements of diet and physical activity through the development of better instruments, innovative technologies, and/or applications of advanced statistical/analytic techniques. Research proposed in the applications should be aimed at exploring and optimizing innovative combinations of objective and self-report measures of physical activity or dietary intake in both the general population and its diverse subgroups.

Specifically, this funding opportunity is intended to support innovative research focused on assessments of dietary and physical activity patterns and the settings in which such behaviors occur, not on the determinants

of these behaviors or on studies of the causal association between environment and behavior. Moreover, it is not the primary intent of this Funding Opportunity Announcement (FOA) to make minor adjustments to existing instruments (such as simply adding specific foods or activities to the already established standardized methods and questionnaires (e.g., Nutrition Data System for Research, USDA 5 Pass Method, NCI Diet History Questionnaire, NCI Automated Self-Administered 24-hour recall (ASA-24), Block FFQ, Seven-Day Physical Activity Recall, International Physical Assessment Questionnaire). Rather, the purpose is to promote substantive improvements in the assessment of diet and physical activity as related to public health, obesity, cancer, and chronic diseases.

### Possible topics include, but are not limited to:

- Refine and test methods of diet or physical activity assessments for use in population surveillance, epidemiological studies, and/or behavioral interventions within general populations, socio-culturally diverse populations, low-literacy respondents, individuals with physical or developmental disabilities, and/or children or other age groups.
- Develop or refine innovative methods to improve respondent self-report of diet or physical activity behavior (potential areas include non-standardized questionnaire administration or use of life-event history calendars or other recall cues to enhance retrieval of relevant information).
- Conduct validation or testing of existing instruments to assess utility in diverse populations.
- Develop or refine innovative methods to improve underreporting of energy intake among obese and overweight individuals;
- Identify factors leading to misreporting on dietary or physical activity assessment instruments.

- Develop, refine, and test analytic or statistical methods to address measurement errors in the collection of dietary and/or supplement intake data and/or physical activity data.
- Develop, refine, and test innovative methods to investigate the multidimensionality of diet and/or physical activity behaviors through pattern analyses.
- Improve methods for measuring the type of physical activity (resistance vs. aerobic) and its amount (frequency, intensity, duration), the energy cost associated with physical activity, energy intake, and energy balance.
- Improve methods for assessing intake of alcohol and particular types of food constituents, such as fat subtypes, phytochemicals, herbs, spices, and other bioactive food components.
- Validate methods for measuring dietary and/or supplement intake or physical activity using appropriate reference instruments, including biomarkers, objective measures, or physiologic outcomes such as strength and fitness.
- Develop or refine new technologies for the measurement of dietary intake and/or supplement intake or physical activity.
- Conduct cognitive testing of self-reported dietary or physical activity instruments to assess respondents' abilities to answer questions, particularly in population subgroups.
- Explore psychometric properties of instruments so that questionnaire items can be developed for various groups, compared using the same metric, or be administered with innovative approaches such as computer adaptive testing methodologies.
- Explore the potential of ecological momentary analysis (EMA) techniques in the assessment of the complex, periodic behaviors of dietary intake and physical activity.
- Develop and test new methods for accurate assessment in normal elderly and elderly with cognitive impairment or dementing diseases, which might result in difficulty remembering details of dietary intake and physical activity.
- Expand and integrate the use of direct observation, self-report, GPS, GIS and other instruments for the joint measurement of diet, physical activity, and the environments in which these activities occur.
- Explore new analytic methods or models that integrate multiple layers of diet and/or physical activity data.

### Mechanisms of Support

The R01 and R21 award mechanisms will be supported by two partner Program Announcements. Expected direct cost amounts for individual awards range from \$200,000 to \$650,000. The scope of the proposed project should determine the project period. The maximum period is 5 years for an R01 project.

*For the full text of these PAs, visit:*

<http://grants.nih.gov/grants/guide/pa-files/PAR-12-198.html> (R01)

<http://grants.nih.gov/grants/guide/pa-files/PAR-12-197.html> (R21)

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### Co-Sponsors

- National Institute of Diabetes and Digestive and Kidney Diseases (*lead*)
- National Cancer Institute
- National Heart, Lung, and Blood Institute
- National Institute on Alcohol Abuse and Alcoholism
- National Institute of Child Health and Human Development
- National Institute of Nursing Research
- Office of Dietary Supplements