

# **Improving Dietary Assessment Methods Using the Cell Phone and Digital Imaging**

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Dietary intake provides some of the most valuable insights for mounting intervention programs for prevention. However, accurate assessment of diet is problematic. Immerging technology in mobile telephones (cell phones) with higher resolution pictures, improved memory capacity, and faster processors, allow these devices to process information not previously possible. This project addresses several objectives of RFA-CA-07-032 by using cell phones to capture both visual and recorded detail that is electronically submitted to the researcher; eases respondent burden; and provides accurate estimates of nutrient, food, and supplement intakes. To adequately address these challenges, the research team assembled represents expertise in electrical engineering, computers, information science, nutritional epidemiology, stable isotopes, and statistics. Our goal is to develop, implement, and evaluate a mobile telephone food record (mpFR) that will translate to an accurate account of daily food and nutrient intake among adults. Our first steps include development of imaging software for use with digital photographs that will estimate quantities of foods consumed, modification of the FNDDS nutrient database, and development of user-friendly interfaces. Mobile telephones are widely used throughout the world and can provide a unique mechanism for collecting dietary information that reduces burden on record keepers. Pictures of food can be marked with a variety of input methods that link the item for image processing and analysis for identification and quantification of food consumed. We plan to recruit a sample of adults to consume meals of precisely known composition while using the mpFR under controlled conditions to aid with quantifying the error associated with the food and nutrient output. The users of the mpFR under these controlled conditions will provide feedback for improving the accuracy and ease of use of the mpFR. A convenient sample of 103 free-living, healthy adults between 21 and 70 y will participate in the validation phase where total energy expenditure will be measured over 7 days with doubly labeled water and compared to total energy intake over the same 7 days as estimated from the mpFR. It is anticipated that the outcome of this project will be an innovate tool that can be used in population and clinical based studies to provide accurate dietary intake data.