

FIRSSSt4 -- A Computerized Method for Conducting Child-Completed 24 Hour Dietary Recalls

Tom Baranowski

Baylor College of Medicine

Multiple 24-hour dietary recalls (24hr) are the preferred method in assessing habitual dietary intake because they provide: the most accurate data; estimates of actual intake (as opposed to relative ranking); details on meal and snack consumption; day-of-week consumption; and other correlates of dietary intake (e.g. source of foods, location of eating, who was present during the eating event). Unfortunately, widespread use of 24hr methods is limited due to the high cost of certified dietitians performing in-person, one-on-one recall sessions and expensive computer software to assist the dietitians. Most current 24hr methods used with children are also limited by relying on text descriptions of foods and food portions instead of pictures. FIRSSSt2 (Food Intake Recording Software System, version 2) was a low-cost, picture-based, computerized 24hr system targeted to children for quantifying just fruit and vegetable intake. FIRSSSt2's promising results eliminated the need for one-on-one dietitian interviews and more expensive dietary assessment software.

We have initiated creation of FIRSSSt4. FIRSSSt4 advances beyond FIRSSSt2 in many ways, including 9000+ photographs of foods in progressively larger portion sizes and animated avatars to guide children through the experience. There are several questions that need to be answered to optimize the effectiveness of FIRSSSt4: 1) How well do children categorize foods into provided standard professional food categories versus child-generated food categories? Are there ages below which each food categorization method works best or do they substantially differ? 2) What is an optimal food search strategy that enables children to easily find the food they have eaten? 3) What should the screen size be for food related plates, utensils and foods? 4) What is the optimal size of food pictures displayed on the screens to enable children to most accurately identify portion sizes of foods eaten? and 5) What is an optimal approach to food portion estimation? This grant application proposes to do four formative research projects to answer these questions, complete FIRSSSt4 based on what was learned from the formative research, and validate the resulting FIRSSSt4 program.

Public Health: FIRSSSt4 will be a computerized method for conducting child-completed 24 hour dietary recalls that will be at least the quality of 24 hour dietary recalls conducted by dietitians, but much lower cost per recall (due to not needing expensive dietitians to conduct the recalls). Increased use of inexpensive dietary assessment tools will be invaluable as part of genetic or disparities research with children, when multiple days of assessment are possible.