**Accuracy of Nutrient Information Provided by Popular Smart Phone Apps & Impact of User Differences**

Nutrient information from popular phone apps and variability in individual entry of ingredients will be evaluated. Precision of dietary analysis tools is important for consumer food choices and health professional recommendation.

The objective of this study is to compare four dietary analysis tools with the gold standard(s) for accuracy. Dietary analysis tools will include the “gold standard” (1) ESHA program, (2) USDA Nutrient database, (3) My Fitness Pal, free version (4) Spark People Calorie Counter, (5) My Net Diary, and (6) Calorie King.

* What we are analyzing:
  + Two standardized recipes as part of a 1-day food diary will be analyzed using all six dietary analysis tools starting with the USDA Nutrient database.
  + Nutrients of interest, including all those required on the current FDA Nutrition facts label, will be compared for significant mean differences using factorial ANOVA. Individual analysis of nutrients will be compared for significant differences to evaluate inter-rater reliability. Therefore, careful entry is important.
* Steps in the analysis (each researcher completes)
  1. Find each app and download it to your smartphone. All apps should be free. (A free version of Calorie King is available. We will try to use this one on our first attempts).
  2. Enter 1-day food diary information (including 2 recipes) into all 6 analysis tools (USDA Nutrient Database, ESHA, apps). Start with USDA Nutrient Database, then continue in any order. Use the “standard” information of a 30-year old, 126 pound, 5’4”, sedentary female (the reference woman for the Estimated Calorie Needs per day, by Age, Sex, and Physical Activity Level from the 2015-2020 Dietary Guidelines for Americans).
     1. This step requires you to track your time spent in entering food information into each analysis tool. PLEASE remember to log start and end times for each tool for each time you enter food information.
  3. Enter nutrient information from each analysis tool (USDA Nutrient Database, ESHA, apps) into the Excel spreadsheet. The Excel doc will have a separate “sheet” for ESHA, USDA Nutrient Database, My Fitness Pal, Spark People Calorie Counter, My Net Diary, and Calorie King.
  4. Evaluate each app (4) for Quality and Usability (8 total evaluations).

**APP EVALUATION PROTOCOL FORM**

Researcher:

Date:

Start time of food data entry:

End time of food data entry:

*\*Add additional dates/times as needed* *if data was completed during multiple sittings. We will need total minutes to track nutrition for the one-day of foods and beverages.*

Description of food data entry (i.e. how was the data logged from the app to the Excel doc?)

App evaluated:

**Quality of App**

|  |  |  |
| --- | --- | --- |
| **EVALUATION CRITERIA** | **+1 POINT EACH** | **COMMENTS** |
| Authors credited |  |  |
| Author’s affiliation |  |  |
| Author credential listed  (add 1 point extra if RD) |  |  |
| References listed  (give 1 point extra if USDA Nutrient Database listed) |  |  |
| Sponsorship(s) disclosed |  |  |
| App modified with the last 30 days  (list date under comments) |  |  |
| Restaurant information included as part of app |  |  |
| Pictures of food are included  (at least for some) |  |  |
| Barcode scanner capable |  |  |
| Reminder to log meals (capable of this feature) |  |  |
|  | **-1 POINT EACH** |  |
| Food databases can be modified by anyone |  |  |
| References sources include .coms or wiki |  |  |
| **OVERALL SCORE (total)**  **Max score possible = 12**  **Minimum score possible = -2** |  |  |

**Usability of App**

|  |  |
| --- | --- |
| **CRITERIA**  ***5=strong agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree*** | **SCORE** |
| 1. I think I would like to use this system frequently. |  |
| 1. I found the system unnecessarily complex. |  |
| 1. I thought the system was easy to use. |  |
| 1. I think I would need the support of a technical person to be able to use this system. |  |
| 1. I found the various functions in this system were well integrated. |  |
| 1. I thought there was too much inconsistency in this system. |  |
| 1. I would imagine that most people would learn to use this system very quickly. |  |
| 1. I found the system very cumbersome to use. |  |
| 1. I felt very confident using the system. |  |
| 1. I needed to learn a lot of things before I could get going with this system. |  |
| **OVERALL SCORE**  **(total)**  **Max possible = 50**  **Minimum possible = 10** |  |

System Usability Scale

<http://www.usability.gov/how-to-and-tools/methods/system-usability-scale.html>