

# Randomized controlled trial for dietary food measurement on mobile devices

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		<input type="checkbox"/> Protocol
<b>Registration date</b> 08/04/2015	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan
		<input type="checkbox"/> Results
<b>Last Edited</b> 07/04/2015	<b>Condition category</b> Nutritional, Metabolic, Endocrine	<input type="checkbox"/> Individual participant data
		<input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Mobile phone applications (apps) are considered to have great potential in helping to tackle the global health challenge of obesity. Promoting a healthy diet to the general population is getting attention. Many such mobile phone apps include the participant being able to report on what they have eaten (or not eaten) in a dietary log or planner. However, they usually only ask for the type of food and the quantity that is eaten. To make such a mobile phone app more useful, a user-friendly and effective way of measuring the amount of food eaten wherever the participant happens to be is needed. In this study, we developed a promising dietary food measurement on mobile devices and two visual-based interactive app alternatives were designed to appeal to young adults. This study compares these two apps in terms of how easy they are to use.

### Who can participate?

Collegiate students aged at least 18 and attending Chang Gung University (Taiwan)

### What does the study involve?

The visual-based interactive apps being tested are the IPI (interactive photo interface) and SBI (sketching-based interface). IPI uses pre-determined images of a specific food which the users can flick through and select the one most representative of the amount eaten. SBI compares the amount of food to a readily available comparator (e.g., a credit card) and the users can scribble to shade in the appropriate area. We then look at how well the apps perform in terms of accuracy rate, response time, and subjective assessment. Participants taking part in the study are randomly assigned to one of three groups. Those in group 1 use the IPI app. Those in group 2 use the SBI app. Those participants in group 3 are in the control group and are given traditional life-sized photos (TLP) of food portions. 18 food items in which the portion of each food are used and the portion of each of these foods is also randomly selected.

### What are the possible benefits and risks of participating?

Not provided at time of registration.

### Where is the study run from?

Food Interaction Design Lab, Department of Industrial Design, College of Management, Chang Gung University (Taiwan)

When is study starting and how long is it expected to run for?  
November 2012 to February 2014

Who is funding the study?

1. Chang Gung Memorial Hospital, Taoyuan (Taiwan)
2. Research Fund of Chang Gung University (Taiwan)
3. Ministry of Science and Technology (Taiwan)

Who is the main contact?

Dr. Sherry Yueh-Hsia Chiu  
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## Contact information

### Type(s)

Scientific

### Contact name

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## Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers

101-3876B

## Study information

### Scientific Title

Design and usability evaluation of user-centered and visual-based aids for dietary food measurement on mobile devices in a randomized controlled trial

**Study objectives**

To design a promising dietary food measurement on mobile devices, and two interactive aids for apps were designed. A randomized controlled trial was conducted to evaluate user usability.

**Ethics approval required**

Old ethics approval format

**Ethics approval(s)**

Ethics Committee of Chang Gung Memorial Hospital, 14/01/2013, ref: 101-3876B.

**Study design**

Randomized controlled trial

**Primary study design**

Interventional

**Secondary study design**

Randomised controlled trial

**Study setting(s)**

School

**Study type(s)**

Other

**Participant information sheet****Health condition(s) or problem(s) studied**

Diet

**Interventions**

Overall, 36, 38, and 34 subjects were randomly assigned to the interactive photo interface (IPI), sketching-based interface (SBI), and traditional life-size photo (TLP) groups, respectively.

**Intervention Type**

Behavioural

**Primary outcome measure**

Two types of outcomes were conducted to evaluate the usability of mobile devices for dietary measurement, and these outcomes included the correct proportion of dietary food measurement.

1. Accuracy was one type of outcome and was defined as the number of correct counts divided by overall counts
2. Absolute weight difference in grams compared with the standard.

**Secondary outcome measures**

1. The duration of the response time consumed in seconds for each item was automatically recorded by the apps.
2. Subjective evaluation for preference was determined by conducting food portion measurements and operating the interface.

**Overall study start date**

01/11/2012

**Completion date**

07/02/2014

## Eligibility

**Key inclusion criteria**

Collegiate students aged 18 or over of Chang Gung University.

**Participant type(s)**

Healthy volunteer

**Age group**

Adult

**Lower age limit**

18 Years

**Sex**

Both

**Target number of participants**

120

**Key exclusion criteria**

N/A

**Date of first enrolment**

14/01/2013

**Date of final enrolment**

31/08/2013

## Locations

**Countries of recruitment**

Taiwan

**Study participating centre****College of Management**

Chang Gung University

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Wen-Hwa 1st Road

Kwei-Shan

Tao-Yuan  
Taiwan  
333

## Sponsor information

### Organisation

Ministry of Science and Technology, Taiwan and Chang Gung University

### Sponsor details

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### Sponsor type

University/education

### Website

<http://www.cgu.edu.tw/bin/home.php>

### ROR

<https://ror.org/009knm296>

## Funder(s)

### Funder type

University/education

### Funder Name

Chang Gung University

### Alternative Name(s)

, CGU

### Funding Body Type

Private sector organisation

### Funding Body Subtype

Universities (academic only)

**Location**

Taiwan

## **Results and Publications**

**Publication and dissemination plan**

**Intention to publish date**

**Individual participant data (IPD) sharing plan**

**IPD sharing plan summary**

Available on request