

Introduction

- The PortionSize© app (Figure 1) estimates dietary intake using embedded templates in real-time and provides immediate feedback.
- PortionSize also sends food images to a server where they can be analyzed using the Remote Food Photography Method (RFPM).
- The RFPM accurately measures energy intake (EI); however, it requires human raters to analyze food images; therefore, the RFPM does not provide immediate dietary feedback.

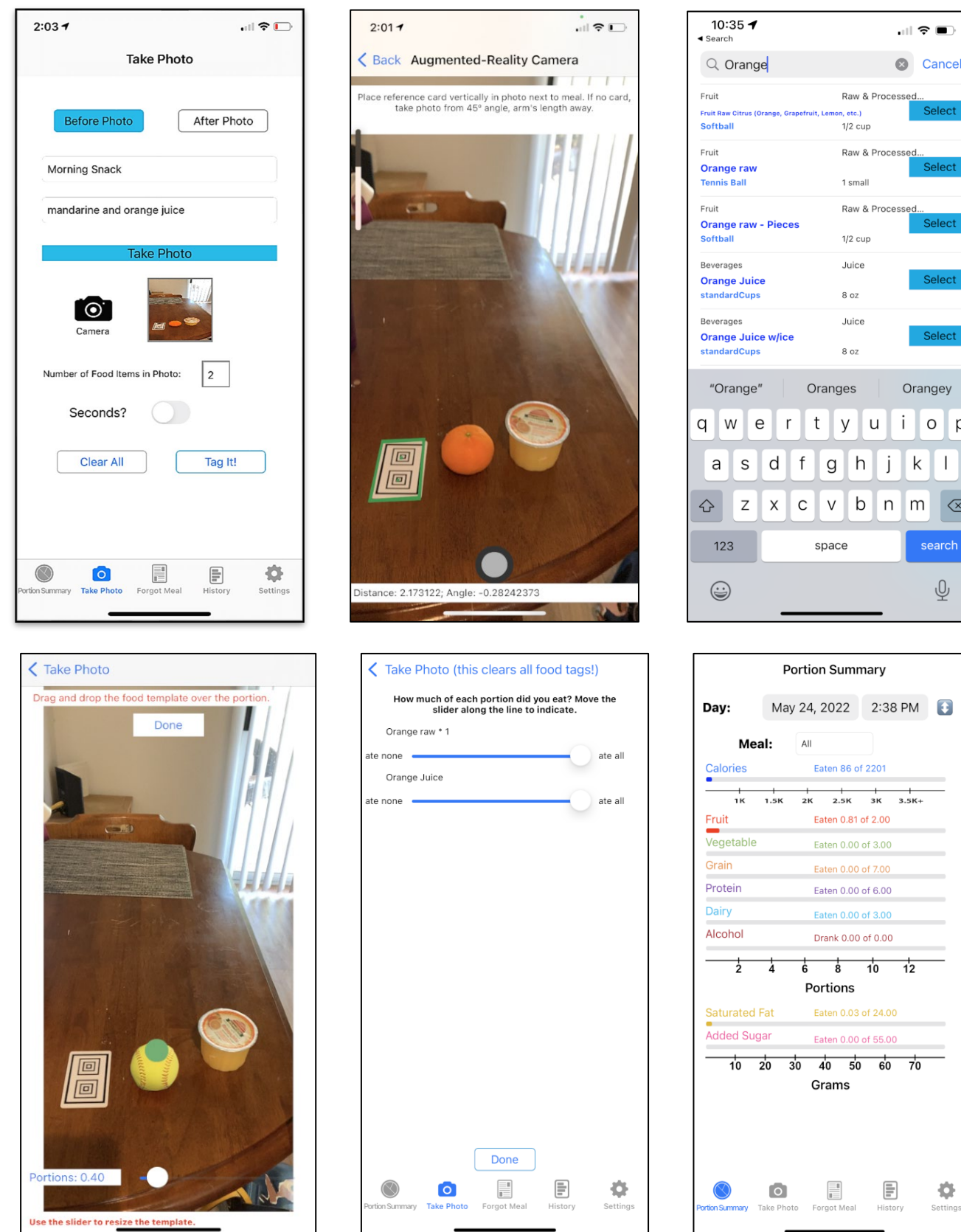


Figure 1: The PortionSize app and procedures of food intake estimation

Objective

- To compare the validity of EI estimates from PortionSize and the RFPM to weighed meals (WM).

Methods

Inclusion criteria:

- Age: 18-65 years
- Body Mass Index (BMI): 18.5 to 45 kg/m²

Exclusion criteria:

- Eating disorder
- Serious mental illness
- Pregnant women or breastfeeding mothers

Recruitment

- Advertisement on PBRC website and Facebook
- Distribution of study flyers

Procedures

- Phone and in-person screening
- ~1.5-hour study visit at PBRC
- Demographics questionnaire and anthropometric measurements (height and weight)
- PortionSize app training and food intake estimation
- Trained staff analyzed food images to estimate EI

Statistical methods (equivalence testing)

Two One-sided T-test (+/-25% equivalence bounds)

Results

Participants and Background characteristics

- 15 participants were enrolled
- Male: 26.7 %; Female 73.3%
- Ethnicity/Race: White 93.3%; African American 6.7%

Results (Cont.)

Background characteristics (Mean±SD)

- Age (y): 28.0±12.2; BMI (kg/m²): 24.1±6.6

Table 1: Comparison of energy intake (kcal) estimation (n = 15 meals)

	Mean±SD		
PortionSize (PS)	743±328		
Weighed Meals (WM)	659±191		
RFPM	660±196		
		Equivalence at ±25%	Mean Percent Error
Difference: PS – WM	84±288	0.18	12.7
Difference: PS – RFPM	83±284	0.16	12.6
Difference: RFPM – WM	1±32	<0.0001	0.2

Conclusion

- The RFPM accurately estimates EI but requires a human rater and is not easily scalable.
- Though not equivalent to weighed values, PortionSize's mean error was ~12.5% and improvements to the app and method could improve these estimates.
- Improvements to make the PortionSize app more accurate and scalable are ongoing. This present study warrants future well-powered trials.

References

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Acknowledgements

