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Accuracy of Nutrient Intake Values from Four Popular Nutrition Tracking Apps

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Assessment of the Accuracy of Nutrient Intake Calculations from Popular Nutrition Tracking Apps

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Introduction

- Nutrition tracking applications (apps) are increasing in popularity with 98,651 health and fitness related apps currently available in the Apple/Android app stores.
- Nutrition apps can be a relatively low-cost method for assessing dietary intake and could provide benefits in consumer, research, and educational settings.

Objective

- To assess the accuracy of nutrient intake calculations from leading nutrition tracking apps.

Methods

- One-day food records were obtained from 30 students in an introductory nutrition course.
- After demonstrating inter-rater reliability (ICC >0.90), one-day food records were entered by two researchers into ESHA-Food Processor, MFP, MND, SparkPeople and Cronometer apps to determine nutrient intake calculations.
- Wilcoxon-signed rank test and Spearman correlation coefficients were used to analyze the data comparing the apps to ESHA.

Table 1. Mean daily nutrient intake values comparing ESHA-Food processor and each nutrition tracking apps

	Kcals			Fat (g/day)			Carbohydrate (g/day)			Protein (g/day)			Fiber (g/day)			Sodium (mg/day)		
	Mean	SD	p-Value	Mean	SD	p- value	Mean	SD	p-value	Mean	SD	p-value	Mean	SD	p-value	Mean	SD	p-value
ESHA	1955.66	741.0	-	85.88	51.00	-	218.63	78.41	-	83.43	33.11	-	16.00	9.09	-	3377.47	1560.75	-
Cronometer	1840.98	613.87	.088	80.64	44.66	.249	201.77	67.73	**.026***	82.94	31.19	.614	16.23	8.99	.558	2791.83	1702.26	**.019***
MyFitnessPal	1707.86	539.42	**.002***	72.23	42.05	**.003***	187.97	70.00	**.005***	79.20	31.86	.165	15.57	8.42	.861	2495.13	1208.96	**.000***
MyNetDiary	1778.96	666.58	**.002***	75.47	52.63	**.003***	197.07	63.09	**.002***	80.13	33.42	.453	15.40	10.24	.206	2816.70	1406.79	**.014***
SparkPeople	1788.56	717.47	**.003***	74.13	49.97	**.006***	200.63	76.32	**.004***	81.23	33.89	.309	15.30	9.11	.289	-	-	-

***p<0.05**

Results

- Mean differences were significantly lower for MFP compared to ESHA for kcals, fat, carbohydrate, and sodium ($p<0.05$), but not for protein, fiber, cholesterol, and sugar ($p>0.05$).
- Mean differences were significantly lower for Cronometer compared to ESHA for kcals, carbohydrate, and sodium ($p<0.05$), but not for fat, protein, fiber, cholesterol, and sugar ($p>0.05$).
- Pearson correlation coefficients for kcal intakes from ESHA compared to MFP and Cronometer were .883 and .934, respectively.

Conclusions

- MFP, MND, and SparkPeople apps all calculated lower kcal intake, fat, carbohydrate and sodium.
- Individuals and researchers should be aware of the significant differences when using nutrition tracking apps.