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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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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.

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.

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.

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

<table>
<thead>
<tr>
<th></th>
<th>Kcals</th>
<th>Fat (g/day)</th>
<th>Carbohydrate (g/day)</th>
<th>Protein (g/day)</th>
<th>Fiber (g/day)</th>
<th>Sodium (mg/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>p-value</td>
<td>Mean</td>
<td>SD</td>
<td>p-value</td>
</tr>
<tr>
<td>ESHA</td>
<td>1955.66</td>
<td>741.0</td>
<td>-</td>
<td>85.88</td>
<td>51.00</td>
<td>-</td>
</tr>
<tr>
<td>Cronometer</td>
<td>1840.98</td>
<td>613.87</td>
<td>.088</td>
<td>80.64</td>
<td>44.66</td>
<td>.249</td>
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<tr>
<td>MyFitnessPal</td>
<td>1707.86</td>
<td>539.42</td>
<td>.002*</td>
<td>72.23</td>
<td>42.05</td>
<td>.003*</td>
</tr>
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<td>MyNetDiary</td>
<td>1778.96</td>
<td>666.58</td>
<td>.002*</td>
<td>75.47</td>
<td>52.63</td>
<td>.003*</td>
</tr>
<tr>
<td>SparkPeople</td>
<td>1788.56</td>
<td>717.47</td>
<td>.003*</td>
<td>74.13</td>
<td>49.97</td>
<td>.006*</td>
</tr>
</tbody>
</table>

* p<0.05