Maintenance of behaviour change after a 12-week mHealth lifestyle programme for young adults.

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Young adults: a high risk group for obesity

Younger adults are

- Gaining the most weight e.g. 0.7 kg per annum in Australia
- Becoming obese e.g. for 18 to 24 year old women prevalence increased from 6% to 21% in < two decades
- Highest consumers of sugar sweetened-beverages
- Binge drinking alcohol
- Lowest consumers of fruit and vegetables
- High consumers of take-away foods
- Reducing physical activity levels after leaving school although 50% sufficiently active (e.g. Australia)
TXT2BFiT program for young adults

* Coaching calls
* Smartphone apps – for self monitoring, information and practical tips
* Nutrition booklet

Incorporates change processes of the Transtheoretical model and control theory

* Text messages
* Emails

* Downloadable web resources
RCT of TXT2BFiT mobile healthy lifestyle programme

Aim
• To test maintenance of the 12-week TXT2BFiT intervention

Setting
• Community – using General Practices and other recruitment

Intervention
2 phone calls, 6 text messages and 6 emails for maintenance. No further contact for control

Subjects
• 18 to 35 years old – GEN Y
• BMI 25 to 31.9 kg/m² or BMI ≥23 and gained > 2 kg in 12 months
• One or more lifestyle behaviours failing recommendations
  • fruit intake < 2 daily
  • sugary drinks >1 L weekly
  • physical activity < 60 minutes daily
  • vegetables < 5 serves
  • energy dense take-away meals > 1 per week

When commencing TXT2BFiT

Hebden et al. Trials 2013 14 75-78; Partridge et al. JMIR MHealth UHealth 2015 3 e66
Study assessment

Screening
- On-line screener to assess eligibility
- Visit to GP for weight, (primary outcome) height and consent
- Randomization

Baseline
- On-line survey to assess secondary outcomes (lifestyle behaviours; fruit & veg; SSB; take-aways; physical activity) and self-report weight
  - TXT2BFiT n=125; Control n=125

12 weeks
- End of TXT2BFiT program
- On-line survey to assess primary and secondary outcomes
- In person weight
  - TXT2BFiT n=110; Control n=104

36 weeks
- End of maintenance
- On-line survey to assess primary and secondary outcomes
  - TXT2BFiT n=98; Control n=106
## Body Weights: TXT2BFiT intervention versus control

<table>
<thead>
<tr>
<th></th>
<th>Baseline 0 weeks</th>
<th>End of Programme 12 weeks</th>
<th>End of Maintenance 36 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TXT2BFiT&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Control&lt;sup&gt;a&lt;/sup&gt;</td>
<td>TXT2BFiT&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>kg</strong></td>
<td>78.4±11.2</td>
<td>79.3±12.6</td>
<td>76.0±10.7</td>
</tr>
</tbody>
</table>

<sup>a</sup> mean ± standard deviation

<sup>b</sup> mean difference between groups (95% Confidence Intervals) adjusted for practice and gender

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**End of trial**

<table>
<thead>
<tr>
<th></th>
<th>intervention</th>
<th>control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight change (kg)</td>
<td>-2.4</td>
<td>-0.5</td>
</tr>
</tbody>
</table>

**End of maintenance**

<table>
<thead>
<tr>
<th></th>
<th>intervention</th>
<th>control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight change (kg)</td>
<td>-3.5</td>
<td>-0.9</td>
</tr>
</tbody>
</table>
### Odds ratios (OR) for improvements in fruit & vegetables

Analysed with cumulative logistic regression models with general estimating equations to account for correlation between time points and multiple imputations for missing values.

<table>
<thead>
<tr>
<th>Improved intake</th>
<th>Fruit OR (95% CI)</th>
<th>Vegetables OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>End of programme 12 weeks</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>1.00 (ref)</td>
<td>1.00 (ref)</td>
</tr>
<tr>
<td>TXT2BFiT Intervention</td>
<td>1.31 (0.79, 2.15)</td>
<td>2.03 (1.23, 3.35)</td>
</tr>
<tr>
<td></td>
<td>P=0.29</td>
<td>P=0.01</td>
</tr>
<tr>
<td><strong>End of maintenance 36 weeks</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>1.00 (ref)</td>
<td>1.00 (ref)</td>
</tr>
<tr>
<td>TXT2BFiT Intervention</td>
<td>2.38 (1.41, 4.01)</td>
<td>1.94 (1.19, 3.16)</td>
</tr>
<tr>
<td></td>
<td>P=0.001</td>
<td>P=0.008</td>
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</tbody>
</table>
### Odds ratios (OR) for improvements in sugar-sweetened beverages and take-away meals

<table>
<thead>
<tr>
<th></th>
<th>Improved intake</th>
<th>Sugar-sweetened Beverages OR (95% CI)</th>
<th>Take-away meals OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Control 1.00 (ref)</td>
<td>1.00 (ref)</td>
</tr>
<tr>
<td><strong>End of programme 12 weeks</strong></td>
<td></td>
<td>TXT2BFiT Intervention 1.67 (1.07, 2.61) P=0.02</td>
<td>2.16 (1.18, 3.95) P=0.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control 1.00 (ref)</td>
<td>1.00 (ref)</td>
</tr>
<tr>
<td><strong>End of maintenance 36 weeks</strong></td>
<td></td>
<td>TXT2BFiT Intervention 1.74 (1.10, 2.77) P=0.018</td>
<td>1.98 (1.17, 3.34) P=0.01</td>
</tr>
</tbody>
</table>
Physical Activity MET-mins

Mean change ± SD

End of programme 12 weeks
- Intervention: 591
- Control: 215

End of maintenance 36 weeks
- Intervention: 785
- Control: 671
Conclusions

• Tailoring of a theory-based intervention to individuals at risk of obesity led to weight loss and improved lifestyles with continued benefits 6 months after the 12 week programme concluded

• mHealth affords the opportunity to deliver effective health promotion en masse but in an individualized manner and potentially at low cost

• The behaviours addressed in this program are prevalent in young adults in all western countries so it is potentially transferable
Acknowledgments

The TXT2BFiT team

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