# Does device matter? Impacts of food-specific inhibition training on food choice, liking and approach bias when delivered by smartphone or computer

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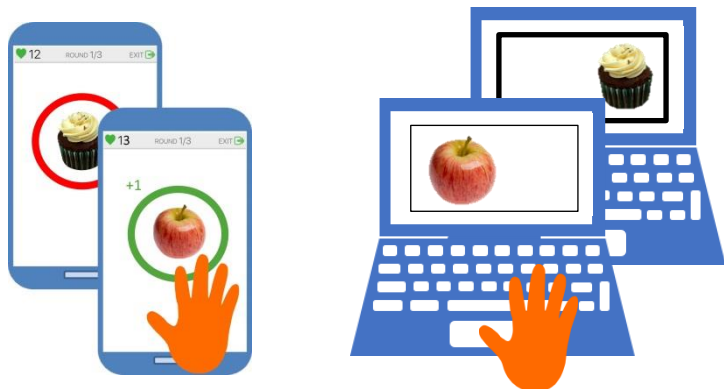
Background

Food-specific inhibition training (FSIT) is a computerised task used to change **choice, intake, and liking of energy-dense foods**, and can even aid weight loss[1,2].

In a reaction time "game", users must respond (tap/key press) on Go trials (fruit/veg/neutral) and inhibit on No-Go trials (energy-dense foods). In this study, the Go/No-Go response was indicated by green/red circles (app) and thin/**bold** border (computer).

Research with the public shows that for weight loss and snacking reduction, **effect sizes are larger when FSIT is delivered by computer** compared to a smartphone app[3].

Aims

- to conduct a non-inferiority trial comparing computer-FSIT versus smartphone-FSIT
- to describe effect sizes for comparison/powering future studies

Hypotheses

Compared to the Control group, FSIT (computer AND app) would lead to

1. Greater choice of healthy foods
2. Reduction in liking for energy-dense foods
3. Reduction in approach tendencies to energy-dense foods

No significant differences between computer/smartphone FSIT groups were predicted.

Method

Sample: 331 participants (259 female) aged 18-36 (*M* = 20.12) were recruited across the Universities of Bath, Cardiff, Exeter and the West of England as part of the GW4 consortium[4]. They were **randomised to FSIT-app (*n* = 110), FSIT-computer (*n* = 111) or non-food Control training (*n* = 110)**. The study had 3 (training group) x 2 (time point: pre vs. post) design.

Session 1

Consent

Baseline Measures

Training
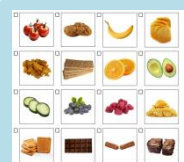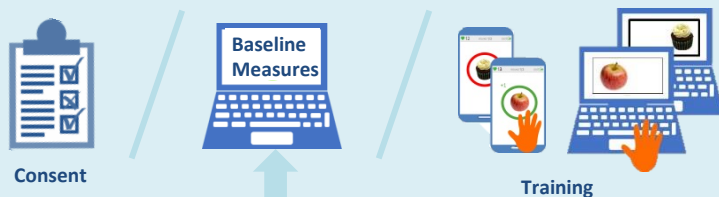
Impulsive choice task
Choose 8 foods in 20 seconds
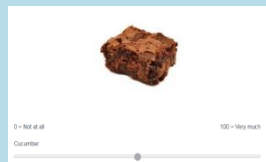
Food liking rating task
Rate 8 energy-dense foods for liking of taste on a scale from 0-100

Approach/avoid bias (IAT)
Categorise 8 fruit/veg & 8 energy-dense foods with approach/avoid words

Session 2 (1-4 days later)

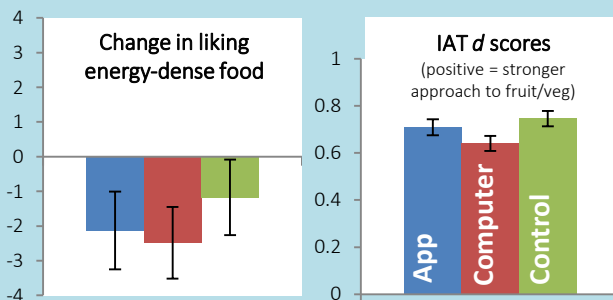**Training**

Outcome Measures

Debrief

Results & Discussion

Data from 247 participants were analysed (FSIT app *n* = 76, FSIT computer *n* = 90, Control *n* = 81). Reasons for exclusion included attrition and not completing tasks as intended.

The analyses found that FSIT led to...

1. **No effect on food choice** (ANCOVA controlling for baseline scores)
2. **No effect on energy-dense food liking** (repeated measures ANOVA)
3. **No effect on approach tendencies to energy-dense food** (ANCOVA controlling for baseline scores).

Change in liking energy-dense food

IAT *d* scores
(positive = stronger approach to fruit/veg)

App   Computer   Control

Why null effects?

Public samples often include those who are overweight and motivated to lose weight[2]. Here, **most participants were young students with a healthy BMI (78.1%)** and baseline IAT *d* scores indicated pre-existing healthy eating habits. This sample was different from community samples, and may have had less to "gain" from training. **Future research should aim to get more representative samples into the lab**.

1 Jones, A., Hardman, C. A., Lawrence, N., & Field, M. (2018). Cognitive training as a potential treatment for overweight and obesity: A critical review of the evidence. *Appetite, 124,* 50-67.
2 Lawrence, N. S., O'Sullivan, J., Parslow, D., Javad, M., Adams, R. C., Chambers, C. D., ... & Verbruggen, F. (2015). Training response inhibition to food is associated with weight loss and reduced energy intake. *Appetite, 95,* 17-28.
3 Lawrence, N. S., Van Beurden, S., Javaid, M., & Mostazir, M. M. (2018). Mass dissemination of web and smartphone-delivered food response inhibition training to reduce unhealthy snacking. *Appetite,* 130, 309.
4 Button, K. S., Chambers, C. D., Lawrence, N., & Munafò, M. R. (2020). Grassroots training for reproducible science: a consortium-based approach to the empirical dissertation. *Psychology Learning & Teaching,* 19(1), 77-90.