Consumption of artificially and sugar sweetened drinks and snack choice: An experimental study.

Heather Renwick & Dr Rachel Crockett
Soft drinks and obesity

• Sugar sweetened drinks (SSDs) may contribute to rising rates of obesity.
• Artificially sweetened drinks (ASDs) are promoted as a healthier option.
• **BUT** both consumption of ASDs and obesity are rising.
• Behaviour may be driven by
  • Biological processes associated with physiological responses to the sweetener itself.
  • Psychological processes in terms of cognitive responses to information about the type of sweetener used.
  • A mixture of both.
Hypotheses

1. Participants who consume an ASD will choose a higher sugar snack than those who consume an SSD drink.

2. Participants who consume a drink labelled as an ASD will choose a higher sugar snack than those who consume a drink labelled as a SSD.

3. There will be an interaction between sweetener and labelling such that
   i. those who consume an ASD correctly labelled as an ASD will choose a higher sugar snack than those who consume and ASD labelled as an SSD.
   ii. Those who consume a SSD correctly labelled as an SSD will choose a lower sugar snack than those who consume an SSD incorrectly labelled as an ASD.
Methods

Design
• 2 (sugar vs artificial sweeteners) x 2 (labelling as artificially or sugar sweetened) between-subjects factorial design.

Participants
• 97 participants aged 18-65 recruited in local community centres in the Ayrshire.

Procedure
• Left alone to complete a taste perception questionnaire and consume the soft drink provided.
• On completion they were offered a snack as a reward for taking part.
• 9 snacks were offered, ranging in sugar and calorie content.
• The true purpose of the study will then be revealed.

Analysis
• Two way between subjects ANOVA
Results: Main effects

**Hypothesis 1:** There was **no significant main effect** of the type of drink consumed on sugar content of snack choice ($F(1,96) = .04, p = .85$).

**Hypothesis 2:** There was **no significant main effect** of label on sugar content of snack choice ($F(1,96) = .16, p = .69$).
Results: Interaction effect

Hypothesis 3:

- There was a marginally significant effect ($F(1,96= 2.89, p < .1$) such that:
  - those who consumed an ASD correctly labelled as an ASD chose a higher sugar snack than those who consumed an ASD incorrectly labelled as an SSD.
  - those who consumed an SSD correctly labelled as an SSD choose a lower sugar snack than those who consumed an SSD incorrectly labelled as an ASD.
Discussion

• Although there were no significant main effects there was a marginally significant interaction of the type of drink consumed and correct labelling on.

• While the study was underpowered, the interaction effect suggests that the impact of the drink on subsequent snack choice was driven by the information about sugar content rather than actual sugar content.

• This suggests a role for cognitive processes underlying the effects of ASD on weight.

• Risk compensation suggests that people have a level of risk which they can comfortably tolerate. When people reduce their risk in one area (e.g. eating more healthily) they subsequently increase their risk by engaging in a more risky behaviour (e.g. eating less healthily).

• These effects warrant further investigation.
Any Questions?