

Habituation Rate to Foods of Differing Fat and Sugar Content in Healthy Weight Women

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Introduction

- Satiation, the process by which an eating bout ends, assists with eating regulation and factors that quicken satiation may aid with decreasing intake.¹
- One factor that influences satiation is rate of decrease in consummatory response (habituation) to repeated presentations of food cues.¹
- Habituation is a basic form of learning, in which behavioral and physiological responses decrease with repeated presentations of a stimulus, with the response decrease unrelated to sensory adaptation/fatigue or motor fatigue.²
- Habituation rates vary among those that show satiation impairment, such as individuals who have a higher body mass index (BMI) and who binge eat.^{3,4}
- One individual characteristic that may influence habituation rate that has not been investigated is food addiction (FA).
- Food type may also influence habituation rate, with highly desirable foods (i.e., foods high in sugar and fat content) showing slower rates of habituation.

Purpose

- This study examined habituation rates to foods high and low in sugar and fat content in normal weight women.
- It was hypothesized that a food high in sugar and fat content would produce a slower habituation rate than a food low in sugar and fat.
- Additionally, higher FA scores would be associated with slower habituation to a food high in fat and sugar.

Participants

- Sixteen participants (BMI = 22.1±1.8 kg/m²; age = 22.9±4.2 yrs; education status = 100% some college education; marital status = 87.5% not married; race = 62.5% white; ethnicity = 87.5% not Hispanic or Latino) completed all sessions.

Procedures

- This study used a one-group, within-subjects factor design, with the within-subjects factor of food (dried apricots [low in fat and added sugar content] and chocolate cake [high in fat and sugar content]).
- All participants played a computer task to earn points to eat dried apricots in one session and chocolate cake in another session, with sessions counter-balanced across participants.
- The computer task had 12, 2-minute trials, during which participants earned points for 75 kcal portions of the food, with points earned by clicking the computer's mouse.
- The computer task was programmed at a variable interval of 120 ± 42 seconds (VI-120) reinforcement schedule, so that participants were rewarded 1 point for the first mouse button pressed after approximately 120s have passed.
- Participants could earn up to 12 portions of food per session.

Measures

- Dependent variable was the number of mouse button presses.
- FA was measure using the Yale Food addiction Scale, with possible scores ranging from 0-7.⁷

Results



- A significant main effect of session was found ($F(11,165) = 18.8, p < 0.001$).
- A trend for significance was found for a main effect of food ($F(1,15) = 3.9, p = .067$).
- No significant interaction of session x food was found.
- FA score had no significant relationship with total responses for dried apricots ($r = 0.16, p = 0.564$) or cake ($r = -0.084, p = 0.756$).

Discussion

- The results of this study are consistent with previous studies which showed a decrease in consummatory response after repeated presentations to food cues.¹
- Results also indicate that habituation rate may be different for different types of foods.
- No relationship was found between FA and habituation rates.
- Limitations of this study include:
 - size of sample.
 - limited variability in FA scores.
- Future research should be conducted with larger sample sizes and with participants having varying levels of FA.

References

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