

Fewer Calories Consumed when Eating Popcorn vs. Potato Chips While Watching TV

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INTRODUCTION

Eating while distracted poses risk for excess energy consumption [1-3], as do other variables such as large portions, energy dense foods and increased eating frequency [1, 4-8]. Snacking while watching TV presents a scenario where these variables may converge. Identifying factors that help to spontaneously reduce energy intake during distracted eating can help reduce the risk of excessive energy intake leading to weight gain.

Popcorn is a whole grain, high fiber snack food associated with improved diet quality and greater satiety than other snacks [9-11]. Low fat popcorn has less energy density than potato chips (100 vs. 170 kcal per 30 g serving, respectively) and six times more volume per kcal than chips. Thus, a large portion of popcorn offers less total energy exposure than the same portion of potato chips. Our hypothesis is that low fat popcorn will lead to less energy intake than potato chips when these snacks are consumed ad libitum while distracted.

OBJECTIVE

Compare energy intake as well as sensory and satiety measures at snacking episodes when participants eat low-fat popcorn or regular potato chips ad libitum from a large bowl while watching television.



Subjects and Study Design. 36 men and women (BMI 25 ± 2.9 , ages 21-50 years) who reported routinely snacking while watching TV were provided in a randomized cross-over manner, a large bowl (15 cups) of 94% fat free microwave popcorn or regular potato chips, plus water, in a theatre-type setting. Three hours prior to each test, participants were asked to consume a standard lunch and abstain from food until reporting to the study site. Under the pretense of rating their liking of each snack, participants were invited to eat and drink as much as they liked while watching a 22-minute Seinfeld TV episode. They recorded satiety on 10-cm VAS before and after the snack, and hedonic scores on 9-point scales after the snack. Differences were determined using ANOVA, $p < 0.05$.

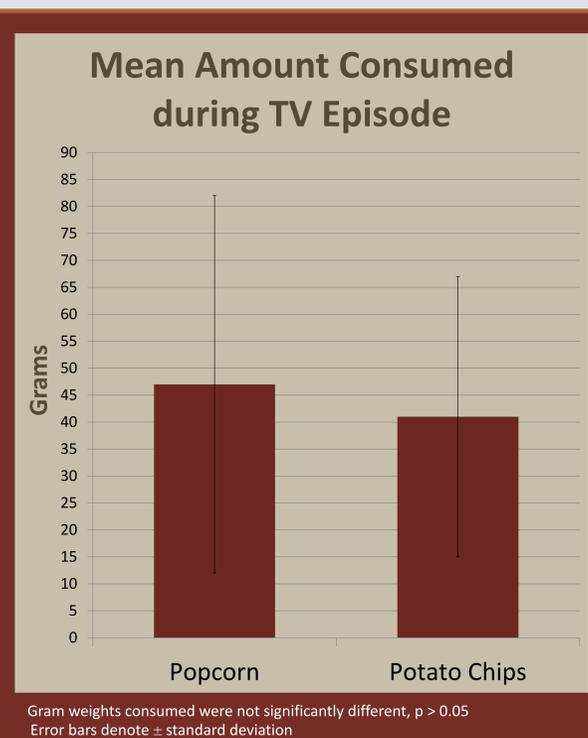
MATERIALS & METHODS

Calorie consumption of each snack was determined by weighing the snack before and after consumption, and converting the weight to energy using the labeled energy content. Hedonic and satiety ratings were determined using visual analogue scales.

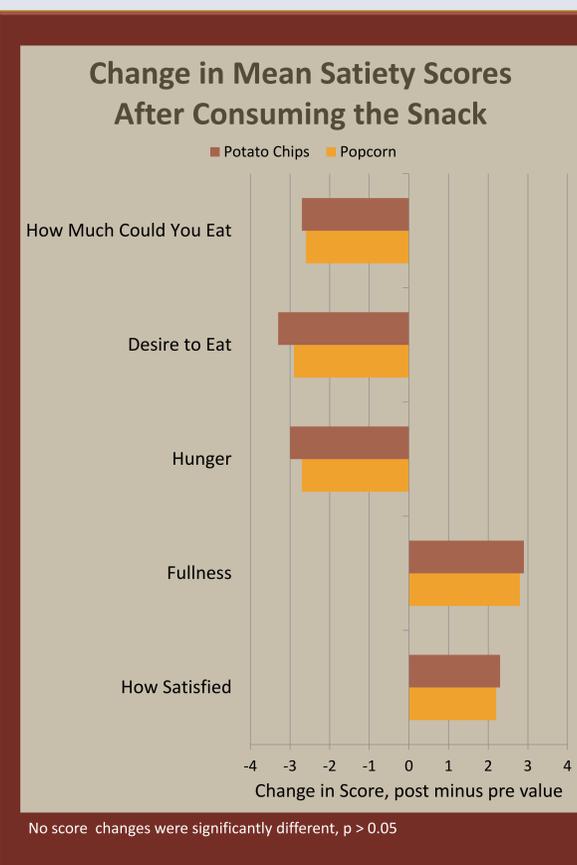
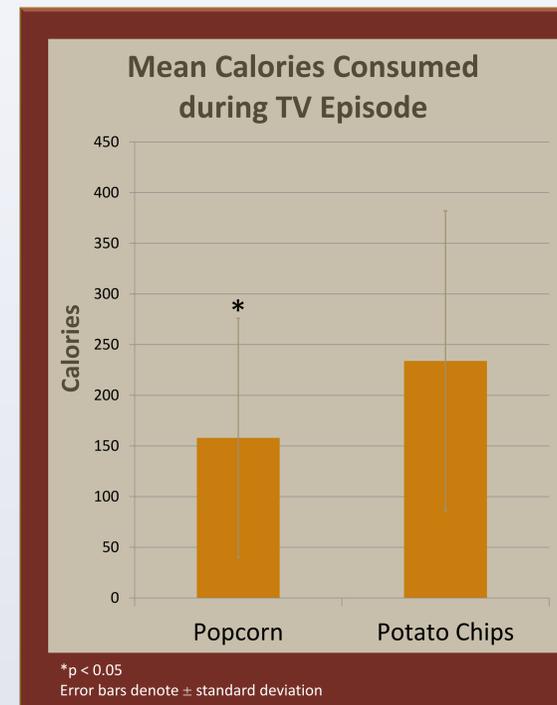


RESULTS

Weight of snacks consumed was not different, but because of the energy density difference (3.4 kcal/g in low fat popcorn vs. 5.7 kcal/g in potato chips), participants consumed 32% fewer calories when eating low fat popcorn than when consuming potato chips. Parity was observed in overall liking, as well as appearance, flavor, and texture liking of the snacks. Parity was also observed in liking of the TV episodes. Satiety scores at baseline did not differ between treatments.



RESULTS



CONCLUSIONS

Participants ate a similar weight of each snack, leading to 32% fewer calories consumed with low fat popcorn because of its lower energy density. Liking and satiety scores were not different between the snacks. Past research on large portions shows that liking and satiety may not be primary drivers of intake [1]. But in actual settings, food liking and learned satiety could influence one's snack selection, and therefore are relevant to consider.

To decrease risk of excess energy intake, individuals should avoid exposure to large portions when distracted; but realistically, this scenario will continue to occur. When it does, choosing snacks of lower energy density, such as low fat popcorn instead of potato chips, may help prevent overeating when exposed to large portions while distracted.



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