Save Dessert For Last? the Effect of Food Presentation Order on Food Choice and Caloric Intake

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This research investigates whether and how food order affects consumers’ food choice and consumption. Four experiments show that when a healthy (indulgent) dessert is the first item in a food sequence, higher (lower) calorie foods are subsequently chosen and overall caloric consumption is higher (lower).

[to cite]:

[url]:
http://www.acrwebsite.org/volumes/1017059/volumes/v42/NA-42

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EXTENDED ABSTRACT
Consumers are often faced with the situation of sequentially combining a meal from an array of healthy and indulgent food options (e.g., all-you-can-eat buffet restaurants and school). In this research, we ask whether a simple change in the order of food presentation—dessert first or dessert last—can substantially alter downstream food choice and caloric intake. Building on the literatures of order effects and self-regulation, we propose that in long food sequences, a healthy (indulgent) food item at the beginning rather than the end of the sequence will lead consumers to balance their first choice and subsequently choose higher (lower) calorie dishes and consume more (less). Our reasoning is that, due to a primacy effect, the first item presented in a sequence will influence subsequent choices. Specifically, consumers attempt to resolve the goal conflict that arises from the first item by pursuing a competing goal in their remaining subsequent choices.

In Study 1, we developed an intervention in a real cafeteria to test whether positioning a healthy or an indulgent dessert at either the beginning or the end of the food lineup affected the choice of main and side dish (light or heavy), and overall caloric intake. Consistent with our prediction, we found that 67% of participants selected the lighter main dish when an indulgent dessert was positioned first compared to 36% when a healthy dessert was positioned first (p < .05), and 70% of participants chose the lighter side dish in the indulgent dessert first condition, compared to 39% of participants in the healthy dessert first condition. In addition, participants consumed significantly fewer calories when an indulgent dessert was positioned first (M = 581) than when a healthy dessert was positioned first (M = 829; p < .001).

Study 2 was conducted to replicate the findings of Study 1 in an on-line decision making context and to explore the moderating role of cognitive resources. Because primacy effects are reduced when an individual’s memories are occupied (Biswas, Biswas, and Chatterjee 2009), we expected that participants under cognitive load would be less likely to balance their food choices and caloric intake on the basis of the first item. Study 2 had a 2 cognitive load (low, high) x 2 dessert presentation order (first, last) x 2 dessert type (healthy, indulgent) between-subjects design. We set up a virtual cafeteria in a web environment that presented foods in sequence. We asked participants to select food items to build their meal and to indicate how much of each they would eat. Before participants began selecting their foods, we asked participants to memorize a seven-digit number (high cognitive load) or a two-digit number (low cognitive load) following a previously established cognitive load manipulation (Shiv and Fedorikhin 1999). Under low cognitive load more participants selected the lighter main dish (77% versus 51%), the lighter side dish (65% versus 34%), and consumed fewer calories (M_{indulgent} = 737 versus M_{healthy} = 916) compared to the healthy dessert first condition (p < .05). However, under high cognitive load conditions, there were no significant differences in main dish choice, side dish choice, or consumption between the indulgent dessert first condition and the healthy dessert first condition (p < .10).

In order to garner process evidence we used the “two randomized experiments strategy” (Stone-Romero and Rosopa 2011). Because indulgences can evoke feelings of guilt (Kivetz and Simonson 2002), and healthy items can signal consistency towards a healthiness goal (Fishbach and Dhar 2005) evoking feelings of deservingness, we hypothesized that guilt and deservingness explain the effect of dessert presentation order and dessert type on reward/restraint. In turn restraint/reward responses lead consumers to eat fewer/more calories.

In Study 3a, we tested the first link between order of presentation [first, last] and dessert type [healthy, indulgent] and the proposed mediator (reward/restraint). We used a 2 dessert presentation order (first, last) x 2 dessert type (healthy, indulgent) between-subjects design and a similar procedure to the one used in Study 2, except that right after participants selected the first item in the sequence, they were prompted to choose between a zero-calorie (reward) and a high-calorie (reward) drink and to rate how much they had restraint or rewarded themselves in their choice of drink. They also rated how guilty (PANAS-X; Watson and Clark 1999) and deserving they felt (Mick and Faure 1998). Significantly more participants chose the rewarding drink when the healthy dessert was presented first (51%), than when the indulgent dessert was presented first (16%). Participants who saw the indulgent dessert first restrained more (M = -31.05) than did participants who saw the healthy dessert first (M = 18.43; p < .001) A bootstrapping analysis showed that guilt and deservingness significantly mediated the effect of dessert presentation order and dessert type on restraint/reward

In Study 3b, we tested the second link between mediator (restraint/reward) and dependent variable (total calories consumed). Participants were assigned to read a scenario that described the positive or negative consequences of food restraint or reward. After reading the scenario, participants chose a snack (chocolate bar or granola bar) and indicated what percentage of their chosen snack they would eat. Participants in the “reward” conditions had a significantly higher caloric intake (M = 151) than participants in the “restraint” conditions (M = 116; p < .01).

Experiments 3a and 3b show that a healthy dessert presented first in a sequence causes consumers to feel a sense of deservingness, which in turn leads consumers to seek reward and consequently eat more calories. On the other hand, an indulgent dessert at the beginning of a food sequence leads consumers to feel guilty, which in turn leads consumers to restrain themselves by eating fewer calories.

The results suggest a simple environmental intervention that can be used to help consumers choose healthier food items and consume less.

REFERENCES

