Can Healthy Eating and Fun Exercising Make Us Fat? Post-Intake and Expenditure Calorie Compensation

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Homeostasis should lead people to compensate for overeating by eating less and to compensate for exercising by eating more. In a series of studies involving analyses of consumption panels and laboratory and field experiments, we show surprisingly little amount of calorie compensation within and across meals. We also find that compensation is influenced by whether overeating involved healthy or tasty foods and whether people focused on the healthy or enjoyable dimensions of exercising.

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SESSION SUMMARY
To Indulge or Not to Indulge? Self-Regulation and Overconsumption
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SESSION OVERVIEW

Consumers often make choices among options representing conflicting goals. This session enhances understanding of various mechanisms to resolve goal conflict in consumer decision processes by investigating the impact of goal conflict and goal progress on choice from multiple theoretical perspectives, thus offering a broader view of the role of self-regulation in choice.

Apart from providing theoretical insights on how goal conflict and goal progress influence choice, this session contributes to the understanding of the domains of self-regulation, consumption, and choice. Specifically, the session examined the following issues:

Research presented by Chernev and Gal explores scenarios in which attempts by individuals to regulate their consumption is counterproductive, leading to overconsumption. In particular, they propose that when individuals face an option that represents one of two competing goals (e.g., a tasty but high-calorie steak), adding another option that favors the alternative goal (e.g., a low-calorie salad) will increase the preference for a combined option that represents both goals (steak and salad). The counterintuitive aspect of their prediction is that by choosing the combined option, individuals end up increasing their calorie intake, an outcome counter to their goal of consuming fewer calories. They theorize that individuals evaluate choice options based not only on the options’ objective performance (e.g., amount of calories) but also based on their fit with the activated goal. In this context, they show that the calorie content of the combined “low-calorie” and “high-calorie” items (e.g., steak and a salad) is perceived as lower than that of the higher calorie option alone (e.g., steak only).

Research by Fishbach and Finkelstein examines how individuals infer their progress toward achieving a particular goal in the context of food consumption. They propose that healthful food labels (e.g., “low fat” or “fat free”) cue people to feel hungry, which increases the consumption of unrelated food items. They assert that this effect is driven by a perception of progress towards a person’s goal of being a healthy individual as a result of exposure to healthy food labels. Consequently, one feels that the competing motivation of satisfying hunger was neglected and increases food consumption. Fishbach and Finkelstein report five experiments that manipulated the exposure to healthy product labels and documented increased subjective feelings of hunger, perceived progress towards the health goal, and actual food consumption.

Finally, research by Chandon, Wansink, Werle, and Payne investigates the effect of calorie compensation after moderate changes in calorie intake or expenditures. In particular, their research seeks to answer the following question: “Even if people eat more or burn fewer calories, why aren’t they restoring their calorie balance by adjusting their subsequent calorie intake and expenditures?” Homeostasis should lead people to compensate for overeating by eating less and compensate for exercising by eating more. In a series of studies involving analyses of consumption panels and laboratory and field experiments, they show surprisingly little amount of calorie compensation within and across meals. They also find that compensation is influenced by whether overeating involved healthy or tasty foods and whether people focused on the healthy or enjoyable dimensions of exercising.

At the end of the session, the discussion leader Baba Shiv integrated the individual presentations into a more general framework, facilitating a broader understanding of the role of self-regulation in choice.

EXTENDED ABSTRACTS

“When When-Regulation Leads to Overconsumption: The Goal-Progress Illusion”
Alexander Chernev, Northwestern University, USA
David Gal, Northwestern University, USA

Consider an individual primarily concerned with calorie intake who is choosing between two meals: a steak and similar steak with a side garden salad. After some deliberation, she chooses the second meal although the combined meal contains more calories and, thus, is inconsistent with her primary goal of consuming fewer calories. This pattern of behavior is not unusual and is, in fact, consistent with anecdotal industry evidence. To illustrate, to increase sales by attracting additional traffic into its stores, McDonald’s introduced to its menu healthy, low-calorie food items like salads and fruit. Yet, its sales grew not so much from increased sales of healthy, low-calorie foods but from selling more fast-food items like double cheeseburgers.

What motivates consumers to act in a way that ends up being counterproductive vis-à-vis their goals? We propose that when individuals face an option that represents one of two competing goals (e.g., a tasty but high-calorie steak), adding another option that favors the alternative goal (e.g., a low-calorie salad) will increase the preference for the combined option that represents both goals (steak and salad). This prediction is consistent with the notion that when faced with a choice among options representing two competing goals, consumers attempt to satisfy both goals by choosing outcomes that ensure progress toward both goals. The counterintuitive aspect of this prediction is that by choosing the combined option, individuals end up increasing their calorie intake, an outcome counter to their goal of consuming fewer calories.

To explain this pattern of behavior, we theorize that individuals evaluate choice options not only based on their objective performance (e.g., amount of calories) but also based on their fit with the activated goal. To illustrate, ordering a green salad is likely to be perceived as consistent with the weight-loss goal, whereas ordering a juicy steak is likely to be perceived as consistent with the goal of indulging oneself. Because the green salad in the above example fits the low-calorie-consumption goal, it is likely to be classified as a “low-calorie” item, whereas the juicy steak is classified as a “high-calorie” item. The interesting phenomenon here is that the calorie content of the combination of a “low-calorie” item and a “high-calorie” one (e.g., steak and a salad) is perceived as lower than that of the higher calorie choice (e.g., steak only).

In a series of three experiments, we examine the proposition that goal-consistent evaluations of decision alternatives can lead to counterproductive decisions. Our first experiment examines how adding a low-calorie option (e.g., a green side salad) to one of two similar high-calorie meals influences consumer choice. We show that even when the primary goal is to reduce calorie intake, adding the low-calorie option increases the preference for the combined meal, although it contains more calories.

In the second experiment, we directly test the proposition that consumers’ reliance on goal-consistency to evaluate choice options leads to a biased estimation of the options’ objective performance (i.e., calorie content). In particular, we ask respondents to estimate the amount of calories in individual components of a meal, as well as the number of calories in the meal as a whole. The data show that when evaluated separately options satisfying competing goals are
estimated to have a greater number of calories than when the same options are estimated jointly.

The third experiment examines the role of goal consistency in estimating options’ performance on consumption quantity. In particular, we examine the amount of calories consumed as a function of consumers’ choice from a menu. We find that when the menu includes a lower calorie item (such as a green salad or an apple) individuals end up consuming more calories (relative to those given a menu without the low-calorie option). We also show that when the menu includes a very high-calorie item (e.g., a 1000-calorie milkshake), the effect is similar to inclusion of a low-calorie item, such that individuals who selected the forgo the very high-calorie item ended up consuming more calories than those in a scenario in which the very high-calorie item was not on the menu.

Overall, our findings are consistent with the proposition that consumers evaluate choice options based on the options’ fit with their active goals and that such evaluations can lead to counterproductive outcomes. In addition to its theoretical contribution, our research has important managerial and public policy implications. In particular, we show that consumers tend to underestimate the calorie content of combinations of healthy (virtues) and unhealthy (vices) products, a finding that casts a shadow on the recent attempts by many fast food restaurants to add healthy options to their menus. Thus, while providing a healthy alternative to individuals interested in a healthier lifestyle, the introduction of healthier options can paradoxically lead to overconsumption, which stems from biased estimation of the calorie content of the available options.

“When Healthy Food Makes You Hungry”
Ayelet Fishbach, University of Chicago, USA
Stacey Finkelstein, University of Chicago, USA

Research on the Dynamics of Self-Regulation (Fishbach & Dhar, 2005; Fishbach, Dhar, & Zhang, 2006) attests that in the course of pursuing multiple goals (e.g., saving and spending), whether the individual experiences commitment to or progress towards a goal influences the course of self-regulation over time. While an experience of commitment encourages goal-congruent actions because of an increased sense that the goal is valuable and attainable, an experience of progress towards one goal will result in relaxing one’s effort and moving away to another, competing motivation that is presumably somewhat neglected. This second self-regulatory process, that of inferring progress, is more likely when individuals’ behavior is under externally imposed control; as a consequence, they cannot infer based on their actions that the goal is important to them and that their commitment is high.

The current research documents effects of perceived progress in the domain of healthy eating. We propose that healthful food labels (e.g., “low fat” or “fat free”) cue people to feel hungry, which increases the consumption of unrelated food items. This effect is driven by a perception of progress towards the goal of being a healthy individual as a result of exposure to healthy food labels. Consequently, a person feels that the competing motivation of satisfying hunger was neglected and increases food consumption.

Five studies manipulate exposure to healthy products and product labels (versus tasty products or regular product labels) and show increased subjective feelings of hunger, perceived progress towards the health goal, and actual food consumption. In study 1, participants tasted a sample of a health bar that was presented as either “health bar” or “tasty bar” and then indicated how hungry they were. Those to whom the sample was framed as “healthy” indicated that they were hungrier compared with participants who did not taste any food sample or tasted a sample that was framed as “tasty.”

Study 2 extends these results by comparing participants’ hunger level before and after eating a food sample. Participants who tasted a sample that was framed as healthy (tasty) showed an increase (decrease) in subjective hunger as a result of their consumption experience while participants in a third control condition that did not sample an item showed no change in hunger over time.

Study 3 investigates the link between healthy food sampling and consumption. Participants tasted a sample that was framed as healthy or tasty and were offered the opportunity to consume an unrelated snack afterwards. Participants to whom the food sample was framed as healthy consumed more of the unrelated snack—hence, they were hungrier—than participants to whom the sample was framed as tasty.

Study 4 tests the prediction that healthy food labels increase feelings of hunger when people do not experience free choice. This study manipulated the sample that people ate (healthy vs. tasty) and the nature of their consumption (free vs. imposed choice). We found that participants who were required to eat a sample framed as healthy indicated higher hunger levels than participants who were required to eat a sample framed as tasty. In contrast, participants who believed they had a free choice were similarly hungry after sampling food that was said to be healthy versus tasty.

Finally, in study 5 we tested the effect on hunger of merely being exposed to healthy labels, such as “low-fat,” versus regular labels. We predicted that the association between health and hunger is basic, such that people do not need to actually consume healthy food to infer that they have made progress towards their health goal. Merely seeing these healthy food labels can increase one’s perception that progress has been made and intensify feelings of hunger. Accordingly, we expected an increase in consumption of unrelated foods. To test these predictions, participants were primed with food labels for products that were either healthy (e.g., fat-free American cheese) or regular (regular American cheese) in a “product evaluation survey.” We found that participants who merely viewed healthy food labels reported that they had made more progress towards their health goal compared to participants who viewed regular food labels. More important, mere exposure to healthful (vs. regular) food labels increased consumption of a neutral snack on a subsequent task.

In summary, across five studies we find that individuals who sample healthy foods or who merely see healthy food labels feel that they have made progress towards their health goals. This sense of progress, in turn, cues feeling of hunger. Thus, eating healthy food can actually whet the appetite.

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It is clear that the simultaneous increase in calorie supply and decrease in calorie expenditures over the past decades help explain the current obesity epidemic. Still, these environmental effects leave one important question unanswered: Even if people eat more or burn fewer calories, why aren’t they restoring their calorie balance by adjusting their subsequent calorie intake and expenditures?

Calorie compensation obviously occurs for very large changes in calorie intake or expenditures. Who hasn’t vowed after a really big Thanksgiving dinner that “they will never eat again”? At this level, homeostatic mechanisms kick in and re-establish the nutritional balance that is necessary for our body to operate. In this
research, we examine calorie compensation after moderate amounts of changes in calorie intake or expenditures. Given that a weekly 67-calorie imbalance leads to a one pound weight gain over a year (Hill, 2003), even moderate amounts of changes in calorie intake can have big impact on obesity rates if people fail to compensate for them.

Our main hypothesis is that calorie compensation after moderate changes in calorie intake or expenditures is driven by perception of goal progress and not by homeostatic physiological mechanisms. Building on research on goal balancing (Dhar, 1999), we hypothesize that two conflicting goals are salient when making food consumption decisions: the hedonic goal of maximizing pleasure and the more utilitarian goal of maintaining good health. In addition, prior research has shown that people underestimate their calorie intake but overestimate their calorie expenditures (Livingstone, 2003). We therefore expect that perception of progress toward the “healthy living” goal is higher when a food is perceived as “healthy” than when it is perceived as “pleasurable” or “tasty.” Accordingly, we hypothesize that once the choice of the main course has been made consumers will choose side orders, desserts, and beverages containing more calories if the main course is positioned as healthy (and thus perceived to contain fewer calories) than if it is positioned as “tasty.”

We expect the opposite pattern of results for calorie compensation following calorie expenditures. Because of the overestimation of calorie expenditures, perception of progress on the “healthy living” goal will be lower when the calorie expenditures are perceived as contributing to health than when they are perceived as contributing to pleasure. We expect that consumers will realize that they are burning fewer calories than they thought when the calorie expenditure activity is positioned as “healthy” than when it is positioned as “pleasurable.” As a result, we expect lower compensation (i.e., smaller meals) after “healthy” exercising than after “pleasure” exercising. Note that by manipulating the perception of the food and the exercising while holding the actual food and the exercise constant, we isolate the effects of goal-driven compensation from those of physiological compensation.

In the first experiment, we provided participants with either a coupon for a burger perceived to be tasty (600 calories) or for a sandwich perceived to be healthy but containing, in fact, 900 calories. We then asked people to choose whether they would like to have chips, drinks, and cookies with the burger/sandwich. We found that people chose beverages, side dishes, and desserts containing up to 131% more calories when the main course was positioned as “healthy” compared to when it was positioned as “tasty,” even though the “healthy” main course already contained 50% more calories than the “tasty” one. As a result, meals ordered in the “healthy” condition unknowingly contained more calories than meals ordered in the “tasty” restaurant condition.

We replicated these results in a second experiment in which we manipulated the health positioning of the food by changing the name of the restaurant and the other types of items on the menu while holding the target dish constant. We also tested whether these effects could disappear when asking participants to consider arguments contradicting the health claims. We found that participants were more likely to order chips with a Bologna sandwich served by a “healthy” restaurant than with the same sandwich served by a “tasty” restaurant unless they were asked to consider whether the health claims of the restaurant actually applied to that particular sandwich.

In the third study, we analyzed consumption diary data from a panel of 1,800 households maintained by NPD Foodworld, Inc. Drawing on previous research (Wansink, 2006) showing that people overeat “low-fat” snack food, especially when it is considered healthy (e.g., granola), we measured calorie compensation within and across meals among households eating low-fat granola and among households eating regular granola. We found that households eating low-fat granola for breakfast consumed more calories overall during that day. We also found that these extra calories came from food and not from beverages, showing that (spurious) compensation occurs only within the same type of food. Finally, consistent with prior work (Khare, 2006), we found that compensation occurred only during breakfast and lunch and had disappeared by dinner time.

The fourth study examined the effects of imagined exercising on subsequent calorie intake. We asked people intercepted in shopping centers to read a scenario describing a 30-minute walk. The scenario asked them to focus either on the music that they would be listening to during the exercising (pleasure condition) or on the amount of effort that it would require (health condition). People in the control condition did not read a scenario involving exercising. Participants were then given the opportunity to help themselves to as many snacks as they wanted. We found that people served themselves more snacks in the pleasurable-exercising condition than in either the healthy-exercising condition or in the control (no exercising) condition.

In the final fifth study, we asked people to walk for half an hour while focusing either on the amount of energy spent (health condition), on the music that they were listening to (pleasure condition), or on an unrelated task (control). We then weighed how much food they took at an all-you-can-eat buffet where they had lunch after the task. We found that people chose bigger meals in the pleasurable exercise condition than in either the healthy exercise or in the control conditions.

Our research seeks to make four major contributions. First, we show that exercise influences food intake differently if people just think about exercising – in which case there is compensation – or if they actually exercise – in which case the framing and the importance of staying fit will play a role. Second, we show that people focusing on having fun when exercising tend to compensate for the calories they have burned by eating more, while those focusing on exercise eat less. Third, we find that people concentrating on exercising eat less when the central objective of staying fit is very important to them. Fourth, we put forth potentially useful implications for public policymakers, health care professionals, and consumers interested in controlling their food intake.