

Understanding the Obesity Problem: Policy Implications of a Motivational Account of (Un)Healthy Eating

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Obesity represents a serious public health issue. One major contributor to obesity is the quality and quantity of foods one consumes. Psychological research trying to understand overeating and unhealthy eating behavior has often attributed it to homeostatic malfunction and/or lack of self-regulatory ability. We propose a different approach here, suggesting that eating behavior represents goal pursuit and that obesity is the result of reliance on foods that fulfill convenience goals and price goals at the expense of health goals. We propose and present empirical evidence suggesting that people are capable of making healthier choices when health (rather than convenience and price) concerns predominate and healthy options are available. Based on this existing evidence we suggest that (1) future research should further explore individuals' food choice as a function of the multiple goals they attempt to achieve rather than as a lack of willpower, and (2) policy may contribute to healthy eating by reprioritizing these goals and emphasizing health while increasing the availability and affordability of healthy foods.

Obesity rates among adults in the United States more than doubled between 1960 and 2004 (Ogden, Carroll, & Flegal, 2008; Wang & Beydoun, 2007). Today, over one third of adult Americans are obese and another one third are overweight (Ogden, Carroll, Kit, & Flegal, 2014). This trend is not limited to the United States, as similarly large increases in overweight and obesity have been observed

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all around the world (James, 2004; Wang & Lobstein, 2006), including in Australia (Booth et al., 2003), Europe (Fredriks et al., 2005), and the Middle East (Al-Nozha et al., 2005). These trends have led researchers to warn of a worldwide obesity epidemic (e.g., James, 2004; Wang, Beydoun, Liang, Caballero, & Kumanyika, 2008).

These increases in obesity are alarming and present a serious public health issue: obese adults spend approximately \$1,500 more yearly on medical costs than people of normal weight (Finkelstein, Trogon, Cohen, & Dietz, 2009). These financial costs are not surprising given that obesity has been linked to increased risk of cardiovascular disease (Hubert, Feinleib, Namara, & Castelli, 1983), stroke (Kurth et al., 2005), type 2 diabetes (Kahn, Hull, & Utzschneider, 2006), some types of cancer (Vucenik & Stains, 2012), and, ultimately, death (Flegal, Kit, Orpana, & Graubard, 2013). Unhealthy eating is a major contributor to individuals' becoming overweight and obese (White House Task Force on Childhood Obesity, 2010), and the present review considers the factors that contribute to (un)healthy eating.

Previous theorizing on unhealthy eating has presumed that overeating results from increased sensitivity to specific cues (for a review, see Stroebe, Van Koningsbruggen, Papies, & Aarts, 2013). One class of theories has suggested that some individuals may be hypersensitive to internal cues including hunger and stress (i.e., *emotional eating*; Bruch, 1961; Kaplan & Kaplan, 1957). A second class of theories has suggested that some individuals may be hypersensitive to external cues, including taste and time (Kaplan & Kaplan, 1957; Schachter, 1971). These theories, in other words, have assumed that unhealthy eating results from under-relying on one's feelings of hunger and satiation in deciding when and how much to eat, as well as over-relying on nonnutritional factors including food availability and food enjoyment. Such outcomes are especially likely when the cognitive resources necessary to cope with strong urges and emotions are low (Herman & Polivy, 1980). Each of these theories focuses on one consideration that contributes to eating decision making, and assumes that if some people overeat, then they must do so because they are hypersensitive to the particular factor under consideration. In contrast, the goal conflict model (Stroebe et al., 2013) notes that multiple considerations drive people's decisions regarding what, and how much, to eat. More specifically, Stroebe and colleagues argue that eating decisions are based on a conflict between eating enjoyment goals and health goals.

We draw on advances in motivation and self-regulation and suggest that (un)healthy eating represents goal pursuit. To support this case, we apply the principles of goal systems theory (see Kruglanski et al., 2002) to eating decision making and behavior. Specifically, we focus on the way multiple goals determine eating behavior. We consider four such goals: taste, health, convenience, and price (cf., Dubowitz, Cohen, Huang, Beckman, & Collins, 2015). In general, the stronger the association strength between any food and each of these goals, the more likely

a person is to consume it. A certain food is pursued when it is perceived as useful to one or more of one's active goals, with this pursuit being facilitated through a transfer of affect from goals to certain foods.

Of course, pursuit of a certain food requires that conflict among one's active eating goals be resolved if these are present. In order to understand how these four goals interact, we integrate research from experimental social psychology (more often focusing on taste and health) with research using epidemiological methods in communities (more often focusing on food availability and price). For example, researchers have investigated the impact of a lack of high-quality grocery stores in a community (i.e., food deserts) on unhealthy eating and obesity.

Together, this approach allows for a more complete understanding of eating behavior, including both healthy eating and overeating. It allows us to understand overweight and obesity outcomes, including why disparities exist across communities with respect to the prevalence of overweight and obese individuals. Unfortunately, policy has (unwittingly) encouraged consumption of unhealthy foods by making them inexpensive and convenient. We review the impact of policies enacted by federal and state governments that have (1) created subsidies that decrease the cost of producing certain types of foods, (2) altered nutrition education and labeling practices, (3) attempted to regulate portion size, (4) instituted zoning laws aimed at reducing the availability of unhealthy foods, and (5) funded increased accessibility of healthy foods. In addition, we consider the likelihood that each of these types of policies is likely to help or harm (un)healthy eating based on the available theory and evidence. We argue that obesity rates reflect the relative balance of these priorities rather than a lack of self-regulatory ability or willpower.

We propose and present empirical evidence suggesting that people are capable of making healthier choices when health (rather than convenience and price) concerns predominate and when healthy options are available. In the pages that follow, we (1) review the principles of goal systems theory, (2) apply the principles of goal systems theory to eating decision making, and (3) discuss policy implications suggested by our analysis.

Goal Systems Theory

Goal systems theory was developed as a *general* theory of goal pursuit meant to apply to *any* goals and *any* means. In this article, we apply it to the *specific* goals (taste, health, convenience, price) related to types of foods as means. Applying goal systems theory to the specific context of eating behavior is a critical step for translating general psychological theory to understanding specific behaviors and policy suggestions. In this sense, the account presented here can be considered a middle-level theory in which specific goal contents are plugged into a theory of basic principles, allowing for more precise predictions of eating behavior and

change. First, we review the principles of goal systems theory. In the next section, we apply the principles of goal systems theory to eating behavior.

The Goal Construct

Most, if not all, of what people do, feel, and think is driven by their important *goals*, or, their *desired* end states that they perceive to be *attainable* through action (Kruglanski, 1996). In daily life, people have many ongoing goals they are trying to fulfill and they can typically do so using a variety of ways or means of attainment (Orehek & Vazeou-Nieuwenhuis, 2013). *Means* are the methods a person uses to reach his or her goals, including the actions, objects, and people that facilitate progress toward a goal. Like any other type of information or knowledge structure, goals are stored in memory along with other (related) goals and their corresponding means of attainment, with such interconnected goals and their means being referred to as *goal systems* (Kruglanski et al., 2002).

When a goal is momentarily important (e.g., wanting to have a good time), it brings to mind the means that one typically uses to attain this goal (e.g., going out for a drink with one's friends), thus stirring one to action (in this case, calling up one's friends; Fishbach & Ferguson, 2007). People need not always be consciously aware of the goals they are trying to pursue (Bargh, Gollwitzer, Lee-Chai, Barn-dollar, & Trötschel, 2001; Bargh & Chartrand, 1999; Chartrand & Bargh, 1996): the goal to have a good time can spontaneously be brought to mind by cues related to it. For example, seeing other people heading to a bar or realizing that it is Friday night may suddenly spark the desire to go out oneself (Custers, Eitam, & Bargh, 2012). Yet, goals' power to guide individuals' choices and the persistence with which they try to materialize such choices is not entirely attributable to a single goal in mind at the moment (Kruglanski, 1996). For example, how much effort the person from the previous example will put into getting ready, calling up friends, and finding a good bar to meet also depends on how important this goal is compared to her other goals (e.g., she may have to be at work the next day at 7.00 a.m.). Additionally, a goal for which no means are available will quickly fade, and other interests will be pursued.

The foregoing description is based on an understanding of the cognitive activation of goals and their related means (Förster, Liberman, & Friedman, 2007). Links between elements (goals and means) can be facilitative or inhibitory. When the linkage between them is facilitative, activation of one element increases the activation of the other element. When the linkage is inhibitory, activation of one element decreases the activation of the other element. As examples of facilitative linkages, the activation of a food enjoyment goal will increase the activation of foods that are tasty and the activation of a healthy goal will activate goals that are nutritious. As examples of inhibitory links, the activation of a food enjoyment goal will inhibit activation of foods that taste bad, and activation of

a health goal will inhibit the activation of nonnutritious foods. The presence of both a hunger and a health goal will result in the activation of only means that are facilitated by both goals (Kopetz et al., 2011). Goals can be chronically activated, which occurs when a person consistently pursues the same goal. For example, a person who consistently has the goal to be healthy is said to have a chronic health goal, and would thus consistently bring to mind healthy options.

Basic Principles of Means–Goal Relations

Association strength. Goals and their means of attainment are connected in memory, yet what determines the strength of means–goal connections within a goal system? This associative strength depends on two factors, namely on how frequently a specific means is used to pursue the goal it is supposed to serve, and on how effective, or instrumental, this means is in achieving its corresponding goal (Custers et al., 2012; Kruglanski et al., 2002). Means that have proven successful in the past are more likely to make their way into a person’s thoughts when the goal they serve is activated. For example, Aarts and Dijksterhuis (2000) found that students were more likely to think about their bicycle (vs. other means of transportation) when the goal to attend class had been activated, but only to the extent that they frequently used their bicycle to travel to campus. The stronger the means–goal association strength, the stronger will be the effects of (1) top-down activation of means by goals, (2) bottom-up activation of goals by means, and (3) affective transfer from goals to means. Each of these is now considered in turn.

“Top-down” activation of means by goals. Because goals and their means of attainment are closely connected in memory, activation of one element in a goal system is likely to spark activation of another element in the same system. This suggests that when a specific goal is activated (e.g., wanting to go for a run), attention should be directed toward useful, or instrumental, means that can help one attain this goal (e.g., looking for one’s running shoes; Custers et al., 2012). Several studies have supported this prediction: Aarts and Dijksterhuis (2000), for example, found that activating a specific goal in a college student sample, in this case having to attend class, evoked thoughts about how to attain this goal, including thoughts about means of commuting to campus.

Goal activation by means availability. Just as activation of a goal can evoke thoughts about its corresponding means of attainment, so, too, can activation of a means evoke thoughts about the goal(s) it serves. Because a means signals an opportunity for action, means remind the actor of the possibility of attaining a particular goal (Shah, 2005; Shah, Hall, & Leander, 2009). For example, Shah and Kruglanski (2003) presented participants with a number of words, one at a time, and asked them to identify whether each word was an attribute (i.e., a trait

or characteristic) as quickly as possible. They found that when participants had been unconsciously primed with the word “running” (vs. not), they were then quicker to identify words related to being physically fit, suggesting that exposure to the construct of running activated the goal that this means is supposed to serve, namely being or becoming fit. When people enter an environment with specific food options (e.g., walking past a restaurant), they are likely to bring to mind goals consistent with these options (e.g., food enjoyment if the options are tasty).

Affective transfer. People feel good when pursuing means to the extent they serve the goals active in the moment, and badly when the means are detrimental to the goal. For example, if running is serving the goal of becoming physically fit and one values fitness, then this person is likely to feel positively about running. In support of this suggestion, Fishbach, Shah, and Kruglanski (2004; Study 2) asked participants to list two of their important goals (e.g., socializing) and activities meant to help them attain these goals (e.g., going to parties). Participants felt better while pursuing means consistent with their active goals than when pursuing means related to alternative goals not in mind at the moment, suggesting that their affective experiences relating to their important goals had transferred to the means they used to attain these goals.

Context dependency. A goal system’s form and structure relies heavily on the situation in which a person finds himself or herself in. Such situational or contextual factors can influence (1) what goal becomes activated, (2) the set of means that is available, (3) the perceived usefulness of these means; and (d) what means a person might eventually adopt to pursue his or her goal(s). Indeed, being at home is likely to activate goals such as relaxing with a glass of wine, watching television, preparing dinner, or catching up with one’s children; goals that would not necessarily have been activated while sitting in one’s office. If one is trying to have a fun day, the available means for doing so are restricted by one’s direct environment: while one’s office may have bars and restaurants within close distance, one’s house may instead offer easy access to a bowling alley or a movie theater. The perceived usefulness of these means may also change depending on the context: while the bar around the corner may seem like a good place to socialize with one’s friends, it may be less suited for a visit with one’s great-grandmother.

Multiple Goal Pursuit and Goal Conflict

People rarely pursue a single goal at a time, with each of these goals having the potential to be satisfied by various means (Kruglanski et al., 2013; Kruglanski, Chernikova, Babush, Dugas, & Schumpe, 2015; Orehek & Vazeou-Nieuwenhuis, 2013). As a student, should you attend your 2-hour night class or go to the bar with your friends? As a young professional, should you pay attention during an

important business meeting or risk peeking at your phone for updates on the ongoing soccer match? As an otherwise responsible spouse, should you wash the dishes to help your wife or husband who is working late or conveniently “forget” them in the sink? As someone attempting to diet, but who also has a sweet tooth, should you stick to you plan to eat a salad, or should you indulge with dessert? Whether consciously aware of it or not, people are always trying to juggle multiple goals that are competing for their limited time and attention and that are sometimes even in direct competition with each other (Kruglanski et al., 2012). What, then, are the consequences of such multiple goal pursuit and the resulting goal conflict?

When a person has multiple goals, these goals have the tendency to “pull” resources away from one’s focal goal of interest, thereby reducing a person’s commitment to their focal goal (a process referred to as *goal pulling*; Kruglanski et al., 2002; Shah & Kruglanski, 2002). These resources include attention, time, and energy. When resources are directed toward a specific goal, then commitment increases and when resources are directed away from a goal, commitment decreases. The goal pulling effect occurs when these resources and commitment are split between multiple goals. For example, if a woman wants to remain physically fit, yet also wants to spend quality time with the important people in her life, she might sacrifice some of the time she would otherwise have spent running to enjoy a romantic dinner with her spouse. Another solution to this, of course, would be to find a means that can satisfy both of these goals simultaneously, such as opting for a physical activity that can be done together with one’s spouse (Chun, Kruglanski, Sleeth-Kepler, & Friedman, 2011). Such a means is called *multifinal* and can be an attractive solution to navigating multiple goals because it allows one to “kill two birds with one stone,” thus making such a means seem valuable to its user (Chun & Kruglanski, 2005). From this perspective, a bicycle could be perceived as especially valuable to a person when it affords the opportunity to get to work while simultaneously getting one’s daily dose of exercise, reducing emissions, and saving on parking fees.

Multifinality, however, also has potential downsides. Multifinal means are more difficult to find and are less available in one’s environment than means that serve a single goal (Köpetz, Faber, Fishbach, & Kruglanski, 2011), thus restricting the number of suitable options. Multifinal means are also perceived to be less useful, or instrumental, for each of the goals they serve than are means that only serve a single goal: just as the cognitive associations between informational nodes in memory are weakened by additional linkages (Anderson & Reder, 1999), connecting a means to additional goals in memory weakens the perceived strength of the linkage between the means and each of its goals, an effect referred to as *dilution* (Zhang, Fishbach, & Kruglanski, 2007). Imagine, for example, a person who rides his bike for the purpose of exercise. When he sees his bike, this will quickly bring to mind thoughts about exercising. Once the person starts biking to the grocery store as a means of transportation, and to work to avoid parking fees,

the original connection between the bike and fitness will be diminished. Now, upon seeing the bike, he is likely to think about its transportation ability, thriftiness, and its ability to serve as an exercise machine, thereby diluting its association to each specific task. Thus, connecting a means to multiple goals reduces its perceived instrumentality to each of the goals because of the decreased association strength.

To test the dilution effect, Zhang et al. (2007) told participants that a means served a single goal versus two or more goals. In one study, participants thought that aerobic exercise fulfilled one or two goals (decreasing risk of developing cardiovascular disease and osteoporosis) and were asked to rate how effective aerobic exercise was in fulfilling its goal(s). While the power of aerobic exercise to protect one against heart disease should objectively not decrease just because aerobic exercise also happens to protect one against osteoporosis, participants seemed to think exactly this: across several studies, they rated a means as less instrumental to the goal(s) it was said to serve when it was attached to multiple goals rather than a single goal.

When one has multiple goals, as in the examples mentioned above, they may sometimes search for, and find, multifinal means to resolve the goal conflict. However, the compatibility between goals is not always high. When multifinal means are not available, or when one of the goals is more important than the others, then the person is likely to adopt a strategy of *goal shielding* (Shah, Friedman, & Kruglanski, 2002). Goal shielding refers to times in which a person inhibits thoughts about alternative goals. For example, when a person is trying to finish an important project that is due the next day but would also like to get together with a good friend, thoughts about calling or emailing his or her friend will likely be inhibited until the project is completed. For example, Shah et al. (2002) either asked participants to list an attribute that they very much wanted to attain (high importance condition) or to list an attribute that they had less of a desire to attain (low importance condition). Participants then listed other attributes they would also like to attain (e.g., a desire to be physically fit) as well as activities that they thought would facilitate such attainment (such as eating healthy foods). As expected, participants in the high importance condition listed fewer alternative attributes compared to those in the low importance condition. This should also occur when people consider multiple goals related to eating. When the goal of convenience is highly important, the person is likely to inhibit concerns related to healthiness if the most convenient options are unhealthy.

Goal shielding is also likely to happen when many of one's goals are not only incompatible with each other, but pursuit of one goal is detrimental to the pursuit of the other goals, as would be the case when one is strongly committed to maintaining good overall health and saving money, yet also wants to feel more relaxed by smoking cigarettes. A means that serves one of a person's goals (relaxation), but impedes progress on others (health and finances) is referred to as *counterfinal* (Kruglanski et al., 2015). A counterfinal means can be perceived as

especially instrumental to the goal it serves. This is because the means is uniquely associated with the goal, forming a strong mental association between the means and the goal it serves (i.e., the reverse of the dilution effect). Moreover, people may infer that this means must be especially useful if one is willing to pay the price of impaired goal progress on a different goal (Kruglanski et al., 2015). For example, Schumpe and Kruglanski (2014) asked participants to evaluate a mouthwash that was either described as creating a burning sensation (counterfinal) or as causing no burning sensation (unifinal). As expected, the mouthwash was perceived to be more instrumental to the goal of killing germs when it was also detrimental to participants' other goal of avoiding unpleasant experiences.

The pursuit of counterfinal means demonstrates that the mechanism of goal shielding can also allow people to pursue goals that are in direct conflict with their other goals. For example, a person can smoke cigarettes while inhibiting thoughts about the negative consequences of smoking, most notably his or her health (Baumeister, Heatherton, & Tice, 1994; Sherman, Rose, Koch, Presson, & Chassin, 2003). In addition, while pursuing a means that is inconsistent with alternative goals, a person is likely to cognitively distort the information that is inconsistent with the behavior (Bélanger, Kruglanski, Chen, & Orehek, 2014; Bélanger, Kruglanski, Chen, Orehek, & Johnson, 2015). While smoking, for example, a person is likely to underestimate the negative health effects of cigarettes and the likelihood that they personally suffer from them, and exaggerate the positive aspects of smoking (Kirchner & Sayette, 2007; Windschitl, 2002).

It is important to recognize that people's goal pursuits are dynamic in nature: not only do they try to achieve multiple goals, but they also add (and drop) goals as they move through life. People shift to pursue new goals when they feel that they have made sufficient progress on their other goals, when they abandon a goal, or when circumstances change. Thoughts about these goals and their means of attainment are then inhibited and people redirect their attention to their new goals and their means of attainment (Fishbach & Dhar, 2005; Fitzsimons, Friesen, Orehek, & Kruglanski, 2009). Fishbach and Dhar (Study 2), for example, manipulated the extent to which students felt that they had made progress on their academic tasks (by "accidentally" showing them that a fictitious participant either spent 30 minutes or 5 hours on his coursework the past day, making them feel as if they progressed more or less by comparison) and then asked participants to rate how interested they would be in pursuing activities that were inconsistent with their academic goal, including going out with friends, watching television, and having fun. Finally, participants rated their perceived academic progress. As expected, participants were more interested in pursuing nonacademic activities when they had made high (vs. low) academic progress compared to the fictitious participant and this effect was mediated by perceived progress on their academic tasks. For people pursuing a dieting goal, reaching a milestone may lead them to

feel sufficient progress on the goal, thereby leading them to abandon it and resort to eating unhealthily.

Summary of Goal Systemic Principles

As discussed above, people's goal systems have a number of empirically supported properties: goals can be activated when a person is exposed to the means a person frequently uses to pursue them, and activated goals are likely to direct one's attention to means that seem useful for pursuing these goals. Because of the close cognitive connection between goals and their means of attainment, the feelings one associates with a goal transfer to its means of attainment. The strength of this means-goal connection depends on a number of factors, including on how many times one has used a specific means in the past, and on how useful it appears to be. People have many goals, each served by multiple means. The person may opt to pursue a means attached to a single goal or to pursue a means attached to multiple goals (Orehek, Mauro, Kruglanski, & van der Bles, 2012). Of course, one's immediate context is likely to influence each of these processes, determining (1) the goals a person is likely to adopt at any given moment, (2) the means that seem to be available for trying to attain these goals, (3) the perceived usefulness of each of these means, and (4) the means one might actually end up adopting in order to pursue his or her goal.

A Multiple Goal Account of (Un)Healthy Eating

Obesity is often explained as resulting from dysregulations in body weight homeostasis (e.g., Herman & Polivy, 1984) or people's lack of willpower and rationality when it comes to adopting healthy lifestyles (Baumeister et al., 1994). In contrast, we suggest that (un)healthy eating follows the principles of goal pursuit that we have outlined above (Kopetz & Orehek, 2015; Orehek & Vazeou-Nieuwenhuis, 2013). In general, the stronger the association strength between any food and each of the goals (taste, price, health, and convenience), the more likely a person is to consume it. A certain food is pursued when it is perceived as useful to one or more of a person's active goals, with this pursuit being facilitated through a transfer of affect from goals to foods. Of course, pursuit of a certain food requires that conflict among one's active eating goals be resolved if these are present.

Affective transfer from eating goals to food

Because certain foods are frequently consumed to satisfy specific eating goals, the person comes to value the means themselves. Fishbach and colleagues (2004; Study 3) provided support for this principle by either increasing the cognitive

accessibility of a health goal or a taste goal. The health goal was increased by asking participants to rate the extent to which they had tried to be health conscious about what they ate and tried to restrict the size of their meals whereas the taste goal was increased by asking participants to rate the extent to which they enjoy good food including gourmet chocolate and dining at fine restaurants. Participants were further asked to list the reasons for consuming healthy foods (health goal condition) or their favorite foods and when they enjoy eating them the most (taste goal condition). Participants were then asked to rate the extent to which they typically experienced positive and negative feelings while eating a variety of healthy (e.g., vegetables) and unhealthy (e.g., fries) food options. Because consumption of unhealthy food represents a means for the taste goal but a hindrance for the health goal, it was predicted that people's affective experiences would transfer to the healthy and unhealthy food options differently depending on what goal (health or taste) they were most concerned with in the moment. As expected, participants expressed more positive feelings when thinking about eating unhealthy food when they were in the taste condition (vs. the health condition), and they expressed less negative feelings when thinking about eating unhealthy food in the taste condition (vs. the health condition). In contrast, participants reported feeling equally positive when eating healthy options, possibly because consumption of this food can satisfy concerns about taste and health.

“Top-down” activation of food by eating goals

When an eating goal is activated, people pay more attention to means that can fulfill their eating goal, leading to increased food consumption. In a series of experiments, Harris, Bargh, and Brownell (2009) exposed children (Experiments 1a & 1b) and adults (Experiment 2) to television programs that either did or did not include food advertising. In the first two experiments, children received a snack while watching television and consumed almost 50% more of these snacks when they had been exposed to food advertising versus not. Adults in Experiment 2 were either exposed to advertisements that promoted snacking, healthy nutrition, or nothing, and were then asked to taste and evaluate a range of healthy and unhealthy foods, supposedly for a separate study. Participants in the snack condition ate more of both healthy and unhealthy foods than participants in the nutrition and control conditions, showing that activating the eating goal of taste made them more likely to use means that could satisfy this goal (and both healthy and less healthy food options can satisfy this goal).

In another study, customers in a butcher store were primed with a health goal through a large poster on the entrance of the store that provided recipes for a slim figure (Papies & Hamstra, 2010). When in the store (that smelled of grilled chicken), customers were offered free meat snacks and the researchers counted how many they consumed. As expected, participants ate fewer snacks when they

had been reminded of a health goal compared to a control condition (i.e., no poster), but that was only true for people who were already on a diet (presumably because the health goal was relevant these people's desires, but not as much to people who had not put themselves on a diet).

Eating goal activation by food availability

The presence of a means signals an opportunity to pursue a goal, and therefore increases activation of the goal served by this means (Shah & Kruglanski, 2003). Phrased differently, the availability of a means signals an opportunity for action (Shah et al., 2009). For example, when candy was placed in transparent containers in an office environment, employees ate more than when the candy was placed in opaque containers (Wansink, Painter, & Lee, 2006). Placing items in prominent locations within grocery stores increases sales of those items (Chevalier, 1975; Curhan, 1972, 1974; Frank & Massey, 1970; Nakamura, Pechey, Suhrcke, & Jebb, 2014), and individuals shopping in stores with high sugar and high fat products placed in such locations are more likely to have a higher body mass index (BMI; Cohen, Collins, Hunter, Ghosh-Dastidar, & Dubowitz, 2015). Across each of these methods, it seems that the presence and prominence of unhealthy options attracts individuals' attention to them, which may remind shoppers of their food enjoyment goal and guide decision making toward such options.

People also eat more food when served larger portion sizes, presumably because larger portion sizes present the person with a greater opportunity to act in accordance with the goals it serves (Diliberti, Bordi, Conklin, Roe, & Rolls, 2004; Levitsky & Youn, 2004; Rolls, Morris, & Roe, 2002; Rolls, Roe, Kral, Meengs, & Wall, 2004; Rolls, Roe, & Meengs, 2006). In one experiment, for example, participants consumed more soup when their bowls of soup were secretly refilled (Wansink, Painter, & North, 2005). People even eat more food when served larger sizes if it is low quality: participants were given popcorn that was 2 weeks old, and although they recognized the poor quality, those who received larger portions ate more popcorn than those who received smaller portions (Wansink & Kim, 2005). In this case, an abundant amount seems to be consumed because it represents the opportunity that the situation affords.

When a means is available, it activates its associated goal in a bottom-up manner. Placing health labels on food is one way to signal that the means serves the goal of healthiness. In one study, people were more likely to report intentions to purchase food items when a subtle symbol containing a red heart with a white check mark was displayed next to the item (Kozup, Creyer, & Burton, 2003), and to select an apple from a bin when the same image was displayed (Wagner, Howland, & Mann, 2015).

A large body of research has investigated the potential impact of living within close proximity to grocery stores with fresh produce and other healthy options

available. Neighborhoods without such options are referred to as food deserts (Ghosh-Dastidar et al., 2014), and these deserts tend to be found in low income areas (Dubowitz et al., 2012). Availability of grocery stores with healthy items is positively associated with healthy eating (Laraia et al., 2004; Rose & Richards, 2004; Sharkey, Johnson, & Dean, 2010) and negatively related to obesity, both when assessed at the individual level (Bodor et al., 2010) and at the community level (Cheadle et al., 1991; Morland, Diez Roux, & Wing, 2006; Morland, Wing, & Diez Roux, 2002; Rundle et al., 2009). Similar patterns have also been observed with a large sample of adolescents (Powell, Han, & Chaloupka, 2010). Although the methods vary across studies, the effects tend to remain when controlling for other variables, such as socioeconomic status and race. Thus, it seems that the presence of grocery stores with healthy food options makes means that satisfy convenience, price, and health goals readily available, creating an opportunity to eat healthily.¹

Unhealthy eating can follow from the same mechanism. Research shows that access to fast-food and other unhealthy food sources increases the rates at which it is consumed (Boone-Heinonen, Gordon-Larsen, Kiefe, Shikany, Lewis, & Popkin, 2011) and is positively associated with BMI (Block, Christakis, O'Malley, & Subramanian, 2011; Laska, Hearst, Forsyth, Pasch, & Lytle, 2010).²

Conflict among Eating Goals. As mentioned before, people typically try to balance the goals of taste, health, convenience, and price when deciding what to eat (cf., Dubowitz et al., 2015). These goals are not necessarily met by the same food options, making conflict among these goals likely. For example, a person who values healthy eating options might equally like greasy pizza and hummus veggie wraps, making him/her prefer to have the wrap for dinner. Yet, s/he also had a long day at work and the supermarket that sells the ingredients to make the wrap is a 20-minute drive away. Conveniently enough, s/he happens to live next to a place that sells pizza. How, then, will this person resolve the conflict among his/her goals, and what will s/he most likely decide to eat? S/he must either inhibit some of the goals (e.g., inhibit concerns for health while eating pizza or inhibit concerns for convenience while driving to the store), or find a multifinal means (Orehek et al., 2012; Orehek & Vazeou-Nieuwenhuis, 2013).

¹ Many studies also find no effect of distance to high-quality grocery stores on food consumption and BMI. We do not consider those studies here because it is difficult to interpret null effects, in part due to methodological limitations such as restriction of range on the distance variable (such as when participants from a single neighborhood are sampled) and poor measurement of outcome variables (cf., Dubowitz, Ghosh-Dastidar, Collins, & Escarce, 2013). No meta-analysis has yet to investigate the total effect of distance on food consumption or BMI.

² Many studies also find no effect of fast-food availability on food consumption and BMI. Due to the same methodological limitations as healthy food distance (see Note 1), we do not evaluate those studies. Again, no meta-analysis has determined the overall effect of fast-food on food consumption or BMI.

When it comes to balancing multiple eating goals, it is common for people to experience conflict between their health and taste goals, with perceptions of taste and health being negatively associated in people's minds. Research, for example, has found that participants rate food as less tasty and less enjoyable when it is said to be healthy as opposed to unhealthy (Raghunathan, Naylor, & Hoyer, 2006). Because of the natural conflict between taste and health, much of the work by goal conflict researchers has focused on the trade-off between taste and health.

Goal inhibition. Given that people perceive a natural conflict between taste and health, people often inhibit one goal in favor of the other. Stroebe and colleagues (2008), for example, found that priming the goal of taste (as in food enjoyment) decreased the cognitive accessibility of health concerns (specifically, weight control), suggesting that whatever goal is most powerful in the moment is likely to lead to the inhibition of alternative goals. In this fictive person's case, then, smelling his favorite deep dish pizza is likely to activate the goal of food enjoyment, thus temporarily silencing thoughts about health.

Another consequence is that this person is likely to believe that deep dish pizza must be especially good at satisfying his taste goal because eating it would be detrimental to his health goal. Indeed, research has shown that such counterfinal means are perceived as more useful to the goal that they are assumed to serve than means that do not impede progress toward one of their important goals (Kruglanski et al., 2015). In one study, Li and Dingle (2012) found that people were more likely to consume excessive amounts of alcohol when they believed that alcohol consumption had greater negative consequences (e.g., hangovers). While it could be argued that people who consume large amounts of alcohol are also more likely to experience its negative side effects, laboratory data have provided further evidence in support of the counterfinality principle. Hennecke, Freund, and Clore (2014; Study 3), for example, asked participants to rate the effectiveness of two hypothetical painkillers, with one of them being described as being sweet and the other one as being bitter. When consuming analgesics, people may be concerned with both health (i.e., the effectiveness of the medicine to relieve their condition) as well as taste (i.e., people may have greater difficulty taking the medicine if it tastes extremely bad) considerations. Yet, participants perceived the bitter pain killer as more effective than the sweet one. In a follow-up study, participants were asked to ingest a placebo painkiller that was either neutral in taste, bitter, or sweet. They were then asked to perform a painful task (keeping their hands in cold water) and to rate the effectiveness of the painkiller throughout the task. While participants' perceived pain decreased over time equally in all conditions, only participants who had ingested the bitter painkiller attributed their decreased experience of pain to the pill.

When inhibiting alternative goals, people are likely to shift their attention from one goal to the next once they feel that they have made enough progress toward

attaining the focal goal (Fishbach, Zhang, & Koo, 2009; Fitzsimons et al., 2009). For example, participants in one study were led to believe they had made significant progress on managing their weight or that they still had significant progress to make. This was accomplished by having participants complete a questionnaire in which they indicated how far they were from their ideal weight. In the high progress condition, the scale was constructed such that participants would mark a point nearer to the ideal than in the low progress condition (by altering the scale end points). Participants in the high progress condition were more likely to choose an unhealthy snack such as a chocolate bar as a reward for participating in this study than participants who had been led to believe that much progress was still left to be made (Fishbach & Dhar, 2005; Study 1). Although perceptions of goal progress can follow from actual goal progress, such perceptions are ironically also afforded by planning to work toward one's goals later. Fishbach and Dhar (Study 4), for example, approached students who were either on their way into the campus gym or on their way out of it. Participants were asked to evaluate how effective their workout would be, or was, in meeting their health goals and were then asked to indicate the extent to which they would like to have a tasty, but fatty, dinner that night. As expected, perceived goal progress was associated with greater willingness to have an unhealthy dinner. This effect occurred regardless of whether participants were still expecting to exercise or had already done so, suggesting that merely planning to make goal progress in the future licenses people to behave in accordance with their alternative (and conflicting) goals in the present.

Similar effects have been found even due to the mere presence of healthy foods on a menu or when participants took dietary supplements. The presence of healthy food options can ironically lead individuals to infer that they have attained their health goal (Wilcox, Vallen, Block, & Fitzsimons, 2009), to feel hungrier (Finkelstein & Fishbach, 2010), to feel licensed to eat unhealthily (Chiou et al., 2011), as well as to choose unhealthy foods (Chandon & Wansink, 2007). When participants took placebo pills they believed were dietary supplements, they expressed greater preference for a buffet over an organic meal (Chiou, Yang, & Wan, 2011; Study 1). It seems, then, that making goal progress (either now or as imagined in the future) on an important eating goal silences peoples' concerns about this, freeing them up to pursue other, and often conflicting, goals in the present.

Individuals' chronic goals can have important influences on the way in which they resolve goal conflicts. Restrained eaters are individuals who attempt to deal with the conflict between taste and healthiness by inhibiting food consumption. Unrestrained eaters, on the other hand, pursue food consumption without restriction (Herman & Polivy, 1980). Research has investigated many of the consequences of restrained versus unrestrained eating. Interestingly, food-related cues (and specifically those that activate the goal of food enjoyment) seem to entice restrained eaters into overeating more so than unrestrained eaters. For example,

Jansen and Van den Hout (1991) exposed or did not expose restrained and unrestrained eaters to the smell of cake, candy, and licorice before they were allowed to eat as much of these as they wanted. Restrained eaters ate more of these foods than unrestrained eaters when they had been exposed (vs. not) to the smells. Unrestrained eaters, on the other hand, were not influenced by exposure to the foods' smell. Similarly, Fedoroff, Polivy, and Herman (2003) exposed participants to the smell of pizza before asking them to rate the tastiness of four pizzas and found that smell exposure increased pizza consumption for restrained eaters, but not for unrestrained eaters.

According to Stroebe, Mensink, Aarts, Schut, and Kruglanski (2008), restrained eaters seem oversensitive to food-relevant cues because their eating behavior is dominated by the two conflicting goals of health versus taste. Because of this, food cues trigger the goal of taste, thereby inhibiting accessibility of the health goal. For example, these researchers had participants complete a lexical decision task while subliminally presenting them with the goal of taste through words such as "French fries" (vs. neutral words; Study 3). Participants were then asked to decide whether a target word was an actual word or a nonword letter string (assuming that people need less time to recognize constructs that are accessible in memory), with these target words being related to dieting (e.g., slim). As expected, restrained eaters were slower to recognize diet-related words as real words after having been presented with a taste goal compared to no goal, whereas unrestrained eaters had no different reaction times depending on whether they had been primed with an eating goal or not. These results demonstrate that restrained eaters are inhibiting diet-related concerns when an eating enjoyment goal is active.

Ward and Mann (2000) further found that placing restrained eaters under high (vs. low) cognitive load increased their food consumption, presumably because they were less able to monitor their food consumption. Unrestrained eaters, however, consumed less food under high (vs. low) cognitive load, presumably because it interfered with their dominant motive of approaching food. Distraction from ambient noise in the form of listening to the radio has produced congruent effects (Bellisle & Dalix, 2001). Similarly, participants who watched a frightening or humorous film, which can be distracting, led to more eating among restrained than unrestrained eaters (Cools, Schotte, & McNally, 1992). Multiple additional studies have found support for the notion that the experience of negative affect increases food consumption among restrained eaters (Frost, Goolkasian, Ely, & Blanchard, 1982; Greeno & Wing, 1994; Ruderman, 1985; Schotte, Cools, & McNally, 1990; but see Tomiyama, Mann, & Comer, 2009).

Based on the result of cognitive inhibition of less dominant goals, we can conclude that individuals attempting to control their diets are likely to stick with their health goal when they are sufficiently motivated to do so (Stroebe et al., 2008). Cognitive load interferes with the ability to monitor behavior related to active goals (Bellisle & Dalix, 2001; Cools et al., 1992; Ward & Mann, 2000).

However, individuals are able to routinize processes linking specific actions to goals (Kruglanski & Orehek, 2007). Thus, healthy eaters are likely to be those individuals who both prioritize healthy eating and have adopted habitual patterns of eating (van't Riet, Sijtsema, Dagevos, & De Bruin, 2011). For example, successful dieters increase the cognitive accessibility of their health goal following exposure to unhealthy food stimuli, which in turn leads to the inhibition of thoughts related to unhealthy foods (Fishbach, Friedman, & Kruglanski, 2003). This effect occurred even in the presence of cognitive load, suggesting that successful dieters are those who formed highly routinized links between means and goals. Thus, prioritizing health should be likely to lead to healthy eating *if such options are available and have been adopted*. We consider the factors that determine whether such options are available in the next section.

Search for multifinal means. When trying to satisfy multiple eating goals, people may try to find a multifinal means that can satisfy several of these goals at once. However, increasing the number of means constrains the options that are available. When hungry participants were reminded of convenience (by having them think about plans later than day vs. already accomplished tasks), they narrowed their set of foods at a cafeteria to only those means that were easy to get (Kopetz et al., 2011). Trying to find a multifinal means does not always require one to constrain options: Kopetz and colleagues found that when participants adopted two highly similar goals (e.g., when participants adopted the goals of being healthy and being in shape), they did not reduce the number of means that they were willing to consider because these goals shared many means in common and working toward one of the goals also implied that one was working toward the alternative goal. Yet, when the feasibility of finding a multifinal means was moderate and participants' multiple goals were not as similar (e.g., when participants had the goals of being healthy and doing well in school), participants substantially reduced the number of means they were willing to consider and only selected means that were multifinal in nature. Finally, when the feasibility of finding a multifinal means was extremely low and two goals had practically no means in common (e.g., when participants had the goals of being healthy and drinking alcohol), participants did not limit their means choices to those means that were multifinal, possibly because they recognized that finding a multifinal means was almost impossible in such a situation. It seems, then, that people try to attain their multiple eating goals with a means that can satisfy all of these simultaneously when the goals are similar enough that they make finding such a means possible, but instead opt to pursue their goals sequentially (rather than concurrently through a multifinal means) when combining pursuit of these goals seems difficult or impossible (Orehek & Vazeou-Nieuwenhuis, 2013).

Although finding a multifinal means can be valuable because it allows people to make progress toward multiple goals simultaneously, a multifinal means may

also make them feel as if using this means is not really helping them achieve their goals due to the dilution effect (Orehek et al., 2012; Zhang et al., 2007). Zhang and colleagues, for example, found that associating a means, such as eating tomatoes, with one health goal (either preventing cardiovascular disease or preventing eye disease) compared to both of these goals changed people's perceptions of the means' usefulness in achieving each of these goals. Specifically, participants seemed to think that eating tomatoes was less effective in helping prevent cardiovascular disease when it was also said to help prevent eye disease compared to when it was only said to prevent cardiovascular disease. Thus, even when people are able to find a multifinal means that can satisfy several of their eating goals, this means may not be perceived as especially helpful in satisfying either of these goals.

Summary of Goal Systemic Account of Eating Choices

People choose what to eat based on four goals: taste, nutrition, price, and convenience (cf., Dubowitz et al., 2015). The physical experience of hunger can influence the relative value of these goals. For example, hunger can increase the focus on high caloric foods (i.e., taste), increase the focus on nutritional aspects of foods, can increase the focus on convenience, and decrease concerns about price. How hunger influences the relative weighting of the four goals depends on an individuals' lay theories regarding food intake and hunger. For example, one eater may think hunger is best satisfied by nutritionally dense foods and another may think hunger is best satisfied by calorically dense foods (for a full discussion, see Stroebe et al., 2013). Thus, overeating follows the principles of goal-directed action (Köpetz & Orehek, 2015). Specifically, we have shown that multiple goals determine eating behavior by reviewing research demonstrating that (1) foods are consumed when perceived as instrumental to active goals (food enjoyment, health; e.g., Harris et al., 2009); (2) through a process of transfer of affect, foods that may not be first enjoyable may become so when they are consumed as means to one's goal (e.g., convenience; Fishbach et al., 2004); (3) when one goal is heightened (e.g., food enjoyment), others are inhibited (e.g., health; Stroebe et al., 2008) and may result in poor/unhealthy food choice; (4) when multiple goals are active, people seek food options compatible with all the currently active goals (Chun et al., 2011, Köpetz et al., 2011); (5) foods serving more goals are less available in local environments (Köpetz et al., 2011).

Policy Implications of a Motivational Account of (Un)Healthy Eating

Policy relevant to people's eating habits can be any intervention that intentionally or unintentionally alters any of the four food choice considerations (taste, health, convenience, price). We discuss policy that falls into multiple categories:

subsidies that decrease the cost of producing certain types of foods, nutrition education and labeling practices, regulations designed to decrease portion size, zoning laws aimed at reducing the availability of unhealthy foods, and funding to increase the accessibility of healthy foods.

Food subsidies

The U.S. government supports the production of some foods through subsidies, including direct subsidies, subsidies on crop insurance, and other protections. The USDA spent more than \$240 billion on subsidies between 1995 and 2009 (Environmental Working Group, 2009). Such programs have the potential to make production of some foods more or less profitable than others, influencing the total production of various types of food, and ultimately consumer price (Jackson, Minjares, Naumoff, Shrimali, & Martin, 2009). Some commentators have suggested that food subsidies, particularly those for corn, increased the production and decreased the consumer price for products such as sugars and unhealthy fats, which may contribute to rates of obesity (for a review, see Franck, Grandi, & Eisenberg, 2014). Given that price and convenience are important determinants of consumers' decision making, making high sugar products abundant and inexpensive would increase their consumption, especially because they do not come at the expense of taste. It may be the case that policy has (unwittingly) increased the consumption of unhealthy foods through food subsidy programs. These programs should continue to be examined and updated with an eye toward healthiness.

Nutrition education and labeling

A major investment has been made in labeling the contents of food, including the presence of sugar, fat, protein, sodium, fiber, and vitamins in grocery store products. More recently, policy has required the display of caloric content of foods in many restaurants. The effectiveness of these programs on healthy decision making relies on the public's understanding of what these labels mean, what constitutes healthy food, and psychological factors that would lead them to make healthy decisions in the face of such information. Research suggests that complex labels are difficult for consumers to form an overall assessment of the healthiness of foods (Levy & Fein, 1998) and do not have a substantial effect on what people eat (Guthrie, Fox, Cleveland, & Welsh, 1995). Even if consumers could accurately distill the information in nutrition labels, or if simpler labels are used—such as those displaying calories in restaurants—then the information may still not be effective. We reviewed much research that has demonstrated several ways in which the presence of healthy food can backfire and have the unintended consequence of leading people to consume more indulgent foods (Chandon & Wansink, 2007; Chiou et al., 2011; Finkelstein & Fishbach, 2010; Wilcox et al., 2009). Therefore,

it is unlikely that simply making the public aware of the unhealthiness of foods is likely to increase healthy eating. This is largely because people tend to associate unhealthy food with tastiness (Raghunathan et al., 2006).

A form of nutrition education by the USDA involves the advertisement of various agricultural products for public consumption, known as *research and promotion programs* or *checkoff programs*. These programs are funded by, and led by industry producers, with board members appointed by the Secretary of Agriculture. One of the most successful checkoff programs in terms of increasing sales has been Dairy Management Inc. However, while the program has increased sales of dairy products, including milk and cheese, the products it promotes are often unhealthy. For example, the “Got Milk” campaign has been successful in increasing sales of milk (originally started by the California Milk Processor Board), even though research within and outside Dairy Management Inc has not found health benefits associated with consuming milk. The “Got Milk” campaign often partners with cookies and other unhealthy snacks. Dairy Management Inc has worked together with Pizza Hut, Dominos, Taco Bell, Wendy’s, and Burger King to increase the amount of cheese on their products to increase cheese sales (cf., Moss, 2010). They boasted an increase in cheese sales by nearly 30 million pounds in 2006 (USDA Report to Congress, 2007). In 2002, Pizza Hut alone increased the use of cheese by 102 Million pounds (USDA Report to Congress, 2003). In addition to working directly with the fast food industry, Dairy Management Inc has worked with grocery stores to increase the sale of cheese snacks by altering the display of products, leading to an increase in sales between 5% and 16% (Dairy Management Inc., 2008). These programs show that U.S. government policy within the Department of Agriculture has worked directly to increase the sales of some of the unhealthiest foods consumed. While these policies are successful in promoting the sale of dairy products, they are harmful to American health. Better integration of government policies, so that one arm of the USDA is not promoting unhealthy foods while another arm is attempting to reduce unhealthy eating is paramount to successful improvements in citizens’ eating habits.

Regulating portion size

New York City mayor Michael Bloomberg famously proposed a limit to the size of sugary soft drinks in order to curb overconsumption. A cap was instituted in 2012 (New York State Department of Health and Mental Hygiene), but was struck down in court in 2014 (New York Statewide Coalition of Hispanic Chambers of Commerce v. the New York City Department of Health and Mental Hygiene, 2014). Research shows that people do, indeed, consume more food when served larger portions (Diliberti et al., 2004; Levitsky & Youn, 2004; Rolls et al., 2002; Rolls et al., 2004; Rolls et al., 2006; Wansink & Kim, 2005; Wansink et al., 2005). Portion sizes have been increasing since the 1970s (Harnack, Jeffery, & Boutelle,

2000). During the same period, the number of meals consumed outside the home has increased (Kant & Graubard, 2004; Lin, 1999). The combination of eating more outside the home, and those portion sizes increasing, has contributed to the increasing body size of the population (Young & Nestle, 2002). Calls to limit portion size in New York City were met with strong opposition, and ultimately did not become law. However, limits on portion size seem to be one way that has a strong likelihood of succeeding: research suggests that individuals served smaller portions will eat less food. Whether such interventions could be scaled to a magnitude large enough to make a clinically significant dent in a person's calorie intake remains to be seen.

Reducing the availability of unhealthy foods

Local government policy has frequently created zoning laws in order to limit the availability of unhealthy food, such as that found in fast food restaurants. For example, in 2008 the city of Los Angeles banned the introduction of any new fast food restaurants in some neighborhoods. Policies of this sort are supported by evidence suggesting that the presence of fast food restaurants (at least sometimes) predicts consumption of unhealthy foods and BMI (Boone-Heinonen et al., 2011; Block et al., 2011; Laska et al., 2010). Little research has investigated the impact of such policies. However, there is little reason to believe that such limitations could possibly hurt the health of residents. One challenge for such policies is that the prevalence of unhealthy foods is likely to be so high that neighborhoods are already saturated with unhealthy food options. If this is the case, then focusing on portion sizes may be a more efficacious way of combating the unhealthy options that already exist (cf., Sturm & Cohen, 2009). Zoning against unhealthy food options is most likely to be effective in new or growing communities, or in communities where, for whatever reason, such food options are not already abundant.

Increasing the availability of healthy foods

As part of the White House Task Force on Childhood Obesity (2010; see also Holzman, 2010), the Healthy Food Financing Initiative was created. This program will distribute \$400 million with the aim of increasing the availability of healthy foods to neighborhoods currently lacking such options, referred to as "food deserts." The program was launched with the ambition goal of eliminating food deserts within seven years. This would mean that every American would live within one mile of a grocery store containing healthy food (10 miles in rural areas). State and city governments have launched similar programs. Inspired by the Food Trust's efforts to promote access to healthy food in Philadelphia (Karpyn, Manon, & Treuhaft, 2010), Pennsylvania's Fresh Food Financing Initiative invested \$30 Million between 2004 and 2010, funding 88 projects (see Giang, Karpyn, Launson,

Hillier, & Perry, 2008). California's Freshworks Fund has over \$270 Million targeted toward the delivery of stores with healthy foods to food deserts. New York City has developed a program called Food Retail Expansion to Support Health (FRESH), which has approved support for at least 19 projects (through tax abatements) aimed at supplying healthy food to neighborhoods where it was lacking. The types of program should continue and should be increased. In addition to merely adding healthy options, they should be made readily apparent through advertisements and placement of healthy options in prominent locations.

An integrative approach to food policy

Each of the policy approaches just reviewed have typically been enacted and evaluated in isolation. Each policy is aimed at a particular goal eaters have: whether it is to seek tasty, healthy, convenient, or inexpensive food. However, decisions made by consumers are driven by a combination of these factors. Thus, the joint contribution of policies taken together should receive greater attention. If the production of healthy foods increases, production of unhealthy foods decreases, the cost of healthy food decreases, the cost of unhealthy food increases, portion sizes are decreased, the public is educated and informed about what constitutes healthy food, healthy foods are delivered to local environments, and unhealthy foods are removed from local environments, then together these policies have the potential work together to increase (reduce) healthy (unhealthy) eating habits. Research on policy has typically evaluated each of these policies in isolation and should be aimed more toward how these policies together may influence individual eating habits and their effect on body weight.

Another implication is that for goals that are currently viewed as antagonistic to one another, such as taste and health, increasing awareness of their potential compatibility (e.g., by advertising options that serve both goals) is likely to reduce the perceived conflict between the goals. Indeed, advertising on cheese products took this exact approach and was successful in increasing the sales of cheese. While the advertising serves as a proof of concept that this is possible, it unfortunately increased sales of foods that are, in fact, unhealthy. Applying the same model to more healthful foods could have a major positive effect.

Conclusions and Directions for Future Research. The ever-increasing rates of overweight and obesity have often been attributed to people's self-regulatory failure or lack of willpower when it comes to adopting healthy eating practices (Baumeister et al., 1994; Herman & Polivy, 1980). According to these accounts, if every person could only will themselves to choose the right (meaning, healthy) foods in the midst of tempting alternatives like fries, pizza, and chocolate fudge cake, then obesity would be eliminated. In contrast, research in motivation and goal pursuit allows for a more nuanced view by showing that people do consider

the consequences of several factors when making food choices: taste, price, health, and convenience. People (often implicitly) weigh the importance of each of these options and make a decision based on the means available to them, thus reflecting a decision that is rational given the considerations of the moment (Kopetz & Orehek, 2015; Kruglanski & Orehek, 2009). Yet, the presence of these multiple considerations often creates goal conflict when deciding what to eat and it should therefore come as no surprise that people struggle to eat healthily even while making momentarily rational decisions.

The government has demonstrated that it is capable of influencing what Americans' eat (e.g., supporting and promoting corn and dairy production and consumption) through the implementation of subsidies and advertising. To decrease (increase) (un)healthy eating, subsidies and advertising should aim more toward healthiness by (1) reprioritize the eating goals and emphasize health; (2) increase affordability of healthy foods; (3) increase local availability of healthy foods; (4) educate the public about healthy foods that are available and affordable.

While food options that are both tasty and healthy exist, these tend to be harder to find and be more expensive than options only perceived to be tasty (Köpetz et al., 2011). Finding a food that is simply tasty will always be easier than finding a food that is tasty, healthy, convenient, and inexpensive, so a person must more often than not decide which of these goals to prioritize. Such goal conflict can be exacerbated by people's tendency to see healthiness as detrimental to the goal of tastiness (Raghunathan et al., 2006) and research on the availability of (un)healthy foods and their rate of consumption even suggests that many environments produce a conflict between healthiness and convenience (Boone-Heinonen et al., 2011).

Important questions about eating decision making and behavior still remain to be answered. While strong experimental research has investigated the conflict between taste and healthiness and between convenience and healthiness and strong community-based research exists on the impact of the convenience of (un)healthy food options, laboratory research on interactions among price and other factors is lacking. For example, experimental research investigating a potential causal role of cost in determining eating decision making, especially when combined with health and convenience goals, is needed. Moreover, community-based research on the prevalence of health goals is needed. For example, research investigating the distance from high-quality grocery stores has not measured the importance of health considerations among participants.

When it comes to designing successful policies, the empirical evidence provides a unified picture and strongly suggests that people's multiple eating goals must be taken into account. While all of us may want to eat healthily, a person may not always have the money or time available to take a 30-minute drive to the nearest supermarket when there also happens to be a convenience store or a fast food restaurant next door. Research that only takes one of people's common eating goals into account is likely to provide incomplete conclusions. For

example, research on distance from grocery stores has typically ignored the health and eating enjoyment goals of the participants (likely contributing to the inconsistent findings). Similarly, policies that only target one of these goals (while ignoring the others) are unlikely to be especially effective. A notable exception to the tendency to target a single factor in isolation is the White House Task Force on Childhood Obesity (2010), a combination of policy implementations that is aiming to bring back childhood obesity rates substantially by 2030 by targeting a variety of factors, including increasing the availability and affordability of healthy food at school and at home, educating parents about nutrition, reducing portion sizes, and reducing the availability of unhealthy foods. Although the combined focus on multiple eating goals appears to be consistent with our recommendations (perhaps instilling optimism), it also warrants a new approach to conceptualizing eating decision making.

References

- Al-Nozha, M. M., Al-Mazrou, Y. Y., Al-Maatouq, M. A., Arafah, M. R., Khalil, M. Z., Khan, N. B., Al-Marzouki, K., Abdullah, M. A., Al-Khadra, A. H., Al-Harthi, S. S., Al-Shahid, M. S., Al-Mobeireek, A., & Nouh, M. S. (2005). Obesity in Saudi Arabia. *Saudi Medical Journal*, 26(5), 824–829.
- Anderson, J. R., & Reeder, L. M. (1999). The fan effect: New results and new theories. *Journal of Experimental Psychology: General*, 128(2), 186–197.
- Aarts, H., & Dijksterhuis, A. (2000). Habits as knowledge structures: Automaticity in goal-directed behavior. *Journal of Personality and Social Psychology*, 78(1), 53–63.
- Bargh, J. A., & Chartrand, T. L. (1999). The unbearable automaticity of being. *American Psychologist*, 54(7), 462–479.
- Bargh, J. A., Gollwitzer, P. M., Lee-Chai, A., Barndollar, K., & Trötschel, R. (2001). The automated will: Nonconscious activation and pursuit of behavioral goals. *Journal of Personality and Social Psychology*, 81(6), 1014–1027.
- Baumeister, R. F., Heatherton, T. F., & Tice, D. M. (1994). *Losing control: How and why people fail at self-regulation*. San Diego, CA: Academic Press.
- Bélangier, J. J., Kruglanski, A. W., Chen, X., Orehek, E. (2014). Bending perception to desire: Effects of task demands, motivation, and cognitive resources. *Motivation and Emotion*, 38, 802–814.
- Bélangier, J. J., Kruglanski, A. W., Chen, X., Orehek, E., & Johnson, D. J. (2015). When Mona Lisa smiled and love was in the air: On the cognitive energetics of motivated judgements. *Social Cognition*, 33, 104–119.
- Bellisle, F., & Dalix, A. (2001). Cognitive restraint can be offset by distraction, leading to increased meal intake in women. *American Journal of Clinical Nutrition*, 74, 197–200.
- Block, J. P., Christakis, N. A., O'malley, A. J., & Subramanian, S. V. (2011). Proximity to food establishments and body mass index in the Framingham Heart Study offspring cohort over 30 years. *American Journal of Epidemiology*, 174(10), 1108–1114.
- Bodur, J. N., Rice, J. C., Farley, T. A., Swalm, C. M., & Rose, D. (2010). The association between obesity and urban food environments. *Journal of Urban Health*, 87(5), 771–781.
- Boone-Heinonen, J., Gordon-Larsen, P., Kiefe, C. I., Shikany, J. M., Lewis, C. E., & Popkin, B. M. (2011). Fast food restaurants and food stores: longitudinal associations with diet in young to middle-aged adults: The CARDIA study. *Archives of Internal Medicine*, 171(13), 1162–1170.
- Booth, M. L., Chey, T., Wake, M., Norton, K., Hesketh, K., Dollman, J., & Robertson, I. (2003). Change in the prevalence of overweight and obesity among young Australians, 1969–1997. *The American Journal of Clinical Nutrition*, 77(1), 29–36.

- Bruch, H. (1961). The transformation of oral impulses in eating disorders: A conceptual approach. *Psychiatric Quarterly*, 35, 458–481.
- Chandon, P., & Wansink, B. (2007). The biasing health-halos of fast food restaurant health claims: Lower calorie estimates and higher side-dish consumption intentions. *Journal of Consumer Research*, 34, 301–314.
- Chartrand, T. L., & Bargh, J. A. (1996). Automatic activation of impression formation and memorization goals: Nonconscious goal priming reproduces effects of explicit task instructions. *Journal of Personality and Social Psychology*, 71(3), 464–478.
- Cheadle, A., Psaty, B. M., Curry, S., Wagner, E., Diehr, P., Koepsell, T., & Kristal, A. (1991). Community-level comparisons between the grocery store environment and individual dietary practices. *Preventive Medicine*, 20(2), 250–261.
- Chevalier, M. (1975). Increase in sales due to in-store display. *Journal of Marketing Research*, 12, 426–431.
- Chiou, W., Yang, C., & Wan, C. (2011). Ironic effects of dietary supplementation: Illusory invulnerability created by taking dietary supplements licenses health-risk behaviors. *Psychological Science*, 22, 1081–1086.
- Chun, W., & Kruglanski, A. (2005). Consumption as a multiple-goal pursuit without awareness. In F. R. Kardes, P. M. Herr, & J. Nantel (Eds.), *Applying social cognition to consumer-focused strategy* (pp. 201–217). Mahwah, NJ: Erlbaum.
- Chun, W. Y., Kruglanski, A. W., Sleeth-Keppler, D., & Friedman, R. S. (2011). Multifinality in implicit choice. *Journal of Personality and Social Psychology*, 101(5), 1124–1137.
- Cohen, D. A., Collins, R., Hunter, G., Ghosh-Dastidar, B., & Dubowitz, T. (2015). Store impulse marketing strategies and body mass index. *American Journal of Public Health*, 105(7), 1446–1452.
- Cools, J., Schotte, D. E., & McNally, R. (1992). Emotional arousal and overeating in restrained eaters. *Journal of Abnormal Psychology*, 101, 348–351.
- Curhan, R.C. (1972). The relationship between shelf space and unit sales in supermarkets. *Journal of Marketing Research*, 9, 406–412.
- Curhan, R.C. (1974). The effects of merchandising and temporary promotional activities on the sales of fresh fruits and vegetables in supermarkets. *Journal of Marketing Research*, 11, 286–294.
- Custers, R., Eitam, B., & Bargh, J. A. (2012). Conscious and unconscious processes in goal pursuit. In H. Aarts & A. J. Elliot (Eds.), *Goal-directed behavior* (pp. 231–266). New York: Psychology Press.
- Dairy Management Inc. (2008). Documents on marketing cheese. Retrieved November 30, 2015 from <http://documents.nytimes.com/documents-on-marketing-cheese#document/p21>
- Diliberti, N., Bordi, P. L., Conklin, M. T., Roe, L. S., & Rolls, B. J. (2004). Increased portion size leads to increased energy intake in a restaurant meal. *Obesity Research*, 12(3), 562–568.
- Dubowitz, T., Cohen, D. A., Huang, C. Y., Beckman, R. A., & Collins, R. L. (2015). Using a grocery list is associated with a healthier diet and lower BMI among very high-risk adults. *Journal of Nutrition Education and Behavior*, 47(3), 259–264.
- Dubowitz, T., Ghosh-Dastidar, M. B., Collins, R., & Escarce, J. (2013). Food policy research: We need better measurement, better study designs, and reasonable and measured actions based on the available evidence. *Obesity*, 21(1), 5–6.
- Dubowitz, T., Ghosh-Dastidar, M., Eibner, C., Slaughter, M. E., Fernandes, M., Whitsel, E. A., Bird, C. E., Jewell, A., Margolis, K. L., Li, W., Michael, Y. L., Shih, R. A., Manson, J. E., & Escarce, J. J. (2012). The Women's Health Initiative: the food environment, neighborhood socioeconomic status, BMI, and blood pressure. *Obesity*, 20(4), 862–871.
- Environmental Working Group (2009). Farm Subsidy Database. Retrieved November 30, 2015 from <http://farm.ewg.org/>
- Fedoroff, I., Polivy, J., & Herman, C. P. (2003). The specificity of restrained versus unrestrained eaters' responses to food cues: General desire to eat, or craving for the cued food?. *Appetite*, 41(1), 7–13.
- Finkelstein, S. R., & Fishbach, A. (2010). When healthy food makes you hungry. *Journal of Consumer Research*, 37, 357–367.

- Finkelstein, E. A., Trogdon, J. G., Cohen, J. W., & Dietz, W. (2009). Annual medical spending attributable to obesity: Payer- and service-specific estimates. *Health Affairs*, *28*(5), w822-w831.
- Fishbach, A., & Dhar, R. (2005). Goals as excuses or guides: The liberating effect of perceived goal progress on choice. *Journal of Consumer Research*, *32*(3), 370-377.
- Fishbach, A., Shah, J. Y., & Kruglanski, A. W. (2004). Emotional transfer in goal systems. *Journal of Experimental Social Psychology*, *40*(6), 723-738.
- Fishbach, A., & Ferguson, M. F. (2007). The goal construct in social psychology. In A. W. Kruglanski & E. T. Higgins (Eds.), *Social psychology: Handbook of basic principles* (2nd ed., pp. 490-515). New York, NY: Guilford Press.
- Fishbach, A., Friedman, R. S., & Kruglanski, A. W. (2003). Leading us not into temptation: Momentary allurements elicit overriding goal activation. *Journal of Personality and Social Psychology*, *84*(2), 296-309.
- Fishbach, A., Zhang, Y., & Koo, M. (2009). The dynamics of self-regulation. *European Review of Social Psychology*, *20*(1), 315-344.
- Fitzsimons, G. M., Friesen, J., Orehek, E., & Kruglanski, A. W. (2009). Progress induced goal shifting. In J. Forgas, R. Baumeister, & D. Tice (Eds.), *Psychology of self-regulation: cognitive, affective, and motivational processes* (pp. 183-197). New York, NY: Psychology Press.
- Flegal, K. M., Kit, B. K., Orpana, H., & Graubard, B. I. (2013). Association of all-cause mortality with overweight and obesity using standard body mass index categories: A systematic review and meta-analysis. *Jama*, *309*(1), 71-82.
- Förster, J., Liberman, N., & Friedman, R. S. (2007). Seven principles of goal activation: A systematic approach to distinguishing goal priming from priming of non-goal constructs. *Personality and Social Psychology Review*, *11*(3), 211-233.
- Franck, C., Grandi, S. M., & Eisenberg, M. J. (2013). Agricultural subsidies and the American obesity epidemic. *American Journal of Preventive Medicine*, *45*(3), 327-333.
- Frank, R., & Massey, W. (1970). Shelf position and space effects on sales. *Journal of Marketing Research*, *7*, 59-66.
- Fredriks, M. A., Van Buuren, S., Sing, H., Remy, A., Wit, M. J., & Verloove-vanhorick, P. S. (2005). Alarming prevalences of overweight and obesity for children of Turkish, Moroccan and Dutch origin in The Netherlands according to international standards. *Acta Paediatrica*, *94*(4), 496-498.
- Frost, R. O., Goolkasian, G. A., Ely, R. J., & Blanchard, F. A. (1982). Depression, restraint and eating behavior. *Behaviour Research and Therapy*, *20*(2), 113-121.
- Ghosh-Dastidar, B., Cohen, D., Hunter, G., Zenk, S. N., Huang, C., Beckman, R., & Dubowitz, T. (2014). Distance to store, food prices, and obesity in urban food deserts. *American Journal of Preventive Medicine*, *47*(5), 587-595.
- Giang, T., Karpyn, A., Laurison, H. B., Hillier, A., & Perry, R. D. (2008). Closing the grocery gap in underserved communities: The creation of the Pennsylvania Fresh Food Financing Initiative. *Journal of Public Health Management and Practice*, *14*(3), 272-279.
- Greeno, C. G., & Wing, R. R. (1994). Stress-induced eating. *Psychological Bulletin*, *115*(3), 444-464.
- Guthrie, J. F., Fox, J. J., Cleveland, L. E., & Welsh, S. (1995). Who uses nutrition labeling, and what effects does label use have on diet quality? *Journal of Nutrition Education*, *27*(4), 163-172.
- Harnack, L. J., Jeffery, R. W., & Boutelle, K. N. (2000). Temporal trends in energy intake in the United States: An ecologic perspective. *The American Journal of Clinical Nutrition*, *71*(6), 1478-1484.
- Harris, J. L., Bargh, J. A., & Brownell, K. D. (2009). Priming effects of television food advertising on eating behavior. *Health Psychology*, *28*(4), 404-413.
- Hennecke, M., Freund, A. M., & Clore, G. L. (2014). *No pain, no gain: Intrinsically enjoyable means are perceived as less instrumental*. Unpublished manuscript.
- Herman, C. P., & Polivy, J. (1980). Restrained eating. In A. J. Stunkard (Ed.), *Obesity* (pp. 208-225). Philadelphia, PA: W. B. Saunders.
- Herman, C. P., & Polivy, J. (1984). A boundary model for the regulation of eating. In J. A. Stunkard & E. Stellar (Eds.), *Eating and its disorders* (pp. 141-156). New York, NY: Raven Press.
- Holzman, D. C. (2010). Diet and nutrition: White House proposes healthy food financing initiative. *Environmental Health Perspectives*, *118*(4), A156.

- Hubert, H. B., Feinleib, M., McNamara P. M., & Castelli, W. P. (1983). Obesity as an independent risk factor for cardiovascular disease: A 26-year follow-up of participants in the Framingham Heart Study. *Circulation*, *67*(5), 968–977.
- Jackson, R. J., Minjares, R., Naumoff, K. S., Shrimali, B. P., & Martin, L. K. (2009). Agriculture policy is health policy. *Journal of Hunger & Environmental Nutrition*, *4*(3–4), 393–408.
- James, P. T. (2004). Obesity: The worldwide epidemic. *Clinics in Dermatology*, *22*(4), 276–280.
- Jansen, A., & Van den Hout, M. (1991). On being led into temptation: “Counterregulation” of dieters after smelling a “preload.” *Addictive Behaviors*, *16*(5), 247–253.
- Kahn, S. E., Hull, R. L., & Utzschneider, K. M. (2006). Mechanisms linking obesity to insulin resistance and type 2 diabetes. *Nature*, *444*(7121), 840–846.
- Kant, A. K., & Graubard, B. I. (2004). Eating out in America, 1987–2000: Trends and nutritional correlates. *Preventive Medicine*, *38*(2), 243–249.
- Kaplan, H. I., & Kaplan, H. S. (1957). The psychosomatic concept of obesity. *Journal of Nervous and Mental Disease*, *125*, 181–201.
- Karpyn, A., Manon, M., Treuhaft, S., Giang, T., Harries, C., & McCoubrey, K. (2010). Policy solutions to the “grocery gap.” *Health Affairs*, *29*(3), 473–480.
- Kirchner, T. R., & Sayette, M. A. (2007). Effects of smoking abstinence and alcohol consumption on smoking-related outcome expectancies in heavy smokers and tobacco chippers. *Nicotine & Tobacco Research*, *9*, 365–376.
- Köpetz, C., Faber, T., Fishbach, A., & Kruglanski, A. W. (2011). The multifinality constraints effect: How goal multiplicity narrows the means set to a focal end. *Journal of Personality and Social Psychology*, *100*, 810–826.
- Köpetz, C., & Orehek, E. (2015). When the end justifies the means: Self-defeating behaviors as “rational” and “successful” self-regulation. *Current Directions in Psychological Science*, *24*, 386–391.
- Kozup, J. C., Creyer, E. H., & Burton, S. (2003). Making healthful food choices: The influence of health claims and nutrition information on consumers’ evaluations of packaged food products and restaurant menu items. *Journal of Marketing*, *67*, 19–34.
- Kruglanski, A. W. (1996). Goals as knowledge structures. In P. M. Gollwitzer & J. A. Bargh (Eds.), *The psychology of action: Linking cognition and motivation to behavior* (pp. 599–618). New York: Guilford Press.
- Kruglanski, A. W., Bélanger, J. J., Chen, X., Köpetz, C., Pierro, A., & Mannetti, L. (2012). The energetics of motivated cognition: A force-field analysis. *Psychological Review*, *119*(1), 1–20.
- Kruglanski, A. W., Chernikova, M., Babush, M., Dugas, M., & Schumpe, B. (2015). The architecture of goal systems: Multifinality, equifinality, and counterfinality in means—end relations. *Advances in Motivation Science*, *2*, 69–98.
- Kruglanski, A. W., Köpetz, C., Belanger, J. J., Chun, W. Y., Orehek, E., & Fishbach, A. (2013). Features of multifinality. *Personality and Social Psychology Review*, *17*, 22–39.
- Kruglanski, A. W., & Orehek, E. (2007). Partitioning the domain of social inference: Dual mode and systems models and their alternatives. *Annual Review of Psychology*, *58*, 291–316.
- Kruglanski, A. W., & Orehek, E. (2009). Toward a relativity theory of rationality. *Social Cognition*, *27*, 639–660.
- Kruglanski, A. W., Shah, J. Y., Fishbach, A., Friedman, R., Chun, W. Y., & Sleeth-Keppler, D. (2002). A theory of goal systems. *Advances in Experimental Social Psychology*, *34*, 331–378.
- Kurth, T., Gaziano, J. M., Rexrode, K. M., Kase, C. S., Cook, N. R., Manson, J. E., & Buring, J. E. (2005). Prospective study of body mass index and risk of stroke in apparently healthy women. *Circulation*, *111*, 1992–1998.
- Laska, M. N., Hearst, M. O., Forsyth, A., Pasch, K. E., & Lytle, L. (2010). Neighbourhood food environments: Are they associated with adolescent dietary intake, food purchases and weight status?. *Public Health Nutrition*, *13*(11), 1757–1763.
- Laraia, B. A., Siega-Riz, A. M., Kaufman, J. S., & Jones, S. J. (2004). Proximity of supermarkets is positively associated with diet quality index for pregnancy. *Preventive Medicine*, *39*(5), 869–875.
- Levitsky, D. A., & Youn, T. (2004). The more food young adults are served, the more they overeat. *The Journal of Nutrition*, *134*(10), 2546–2549.

- Levy, A. S., & Fein, S. B. (1998). Consumers' ability to perform tasks using nutrition labels. *Journal of Nutrition Education, 30*(4), 210–217.
- Li, H. K., & Dingle, G. A. (2012). Using the Drinking Expectancy Questionnaire (revised scoring method) in clinical practice. *Addictive Behaviors, 37*(2), 198–204.
- Lin, D. B. H. (1999). Away-from-home foods increasingly important to quality of American. *Agriculture Information Bulletin No. 749*.
- Morland, K., Roux, A. V. D., & Wing, S. (2006). Supermarkets, other food stores, and obesity: The atherosclerosis risk in communities study. *American Journal of Preventive Medicine, 30*(4), 333–339.
- Morland, K., Wing, S., & Roux, A. D. (2002). The contextual effect of the local food environment on residents' diets: The atherosclerosis risk in communities study. *American Journal of Public Health, 92*(11), 1761–1768.
- Moss, M. (2010, November 6). While warning about fat, U.S. pushes cheese sales. *New York Times*. Retrieved November 30, 2015 from http://www.nytimes.com/2010/11/07/us/07fat.html?_r=0
- Nakamura, R., Pechey, R., Suhrcke, M., Jebb, S. A., & Marteau, T. M. (2014). Sales impact of displaying alcoholic and non-alcoholic beverages in end-of-aisle locations: An observational study. *Social Science & Medicine, 108*, 68–73.
- New York City Department of Health and Mental Hygiene, Board of Health Notice of Adoption of an Amendment (§81.53) to Article 81 of the New York City Health Code.
- New York Statewide Coalition of Hispanic Chambers of Commerce v. the New York City Department of Health and Mental Hygiene (2014). New York Court of Appeals, No. 134.
- Ogden, C. L., Carroll, M. D., & Flegal, K. M. (2008). High body mass index for age among US children and adolescents, 2003–2006. *Jama, 299*(20), 2401–2405.
- Ogden, C. L., Carroll, M. D., Kit, B. K., & Flegal, K. M. (2014). Prevalence of childhood and adult obesity in the United States, 2011–2012. *Jama, 311*(8), 806–814.
- Orehek, E., Mauro, R., Kruglanski, A. W., & Van der Bles, A. M. (2012). Prioritizing association strength versus value: Regulatory mode and means evaluation in single and multi-goal contexts. *Journal of Personality and Social Psychology, 102*, 22–31.
- Orehek, E., & Vazeou-Nieuwenhuis, A. (2013). Sequential and concurrent strategies of multiple goal pursuit. *Review of General Psychology, 17*, 339–349.
- Papies, E. K., & Hamstra, P. (2010). Goal priming and eating behavior: Enhancing self-regulation by environmental cues. *Health Psychology, 29*(4), 384–388.
- Powell, L. M., Han, E., & Chaloupka, F. J. (2010). Economic contextual factors, food consumption, and obesity among US adolescents. *The Journal of Nutrition, 140*(6), 1175–1180.
- Ragunathan, R., Naylor, R. W., & Hoyer, W. D. (2006). The unhealthy-tasty intuition and its effects on taste inferences, enjoyment, and choice of food products. *Journal of Marketing, 70*, 170–184.
- Rolls, B. J., Morris, E. L., & Roe, L. S. (2002). Portion size of food affects energy intake in normal-weight and overweight men and women. *The American Journal of Clinical Nutrition, 76*(6), 1207–1213.
- Rolls, B. J., Roe, L. S., Kral, T. V., Meengs, J. S., & Wall, D. E. (2004). Increasing the portion size of a packaged snack increases energy intake in men and women. *Appetite, 42*(1), 63–69.
- Rolls, B. J., Roe, L. S., & Meengs, J. S. (2006). Larger portion sizes lead to a sustained increase in energy intake over 2 days. *Journal of the American Dietetic Association, 106*(4), 543–549.
- Rose, D., & Richards, R. (2004). Food store access and household fruit and vegetable use among participants in the US Food Stamp Program. *Public Health Nutrition, 7*(8), 1081–1088.
- Ruderman, A. J. (1985). Dysphoric mood and overeating: A test of restraint theory's disinhibition hypothesis. *Journal of Abnormal Psychology, 94*(1), 78–85.
- Rundle, A., Neckerman, K. M., Freeman, L., Lovasi, G. S., Purciel, M., Quinn, J., Richards, C., Sircar, N., & Weiss, C. (2009). Neighborhood food environment and walkability predict obesity in New York City. *Environmental Health Perspectives, 117*(3), 442–447.
- Schachter, S. (1971). *Emotion, obesity, and crime*. New York, NY: Academic Press.
- Schotte, D. E., Cools, J., & McNally, R. J. (1990). Film-induced negative affect triggers overeating in restrained eaters. *Journal of Abnormal Psychology, 99*(3), 317–320.
- Schumpe, B. M., & Kruglanski, A. W. (2014). *Counterfinality: On the positive impact of negative information*. Manuscript submitted for publication.

- Shah, J. Y. (2005). The automatic pursuit and management of goals. *Current Directions in Psychological Science*, *14*(1), 10–13.
- Shah, J. Y., Friedman, R., & Kruglanski, A. W. (2002). Forgetting all else: On the antecedents and consequences of goal shielding. *Journal of Personality and Social Psychology*, *83*, 1261–1280.
- Shah, J. Y., Hall, D., & Leander, N. P. (2009). Moments of motivation: Towards a model of regulatory rotation. In G. B. Moskowitz & H. Grant (Eds.), *The psychology of goals* (pp. 234–254), New York: Guilford.
- Shah, J. Y., & Kruglanski, A. W. (2002). Priming against your will: How accessible alternative affect goal pursuit. *Journal of Experimental Social Psychology*, *38*, 368–383.
- Shah, J. Y., & Kruglanski, A. W. (2003). When opportunity knocks: Bottom-up priming of goals by means and its effects on self-regulation. *Journal of Personality and Social Psychology*, *84*, 1109–1122.
- Sharkey, J. R., Johnson, C. M., & Dean, W. R. (2010). Food access and perceptions of the community and household food environment as correlates of fruit and vegetable intake among rural seniors. *BMC Geriatrics*, *10*(1), 32.
- Sherman, S. J., Rose, J. S., Koch, K., Presson, C. C., & Chassin, L. (2003). Implicit and explicit attitudes toward cigarette smoking: The effects of context and motivation. *Journal of Social and Clinical Psychology*, *22*(1), 13–39.
- Stroebe, W., Mensink, W., Aarts, H., Schut, H., & Kruglanski, A. W. (2008). Why dieters fail: Testing the goal conflict model of eating. *Journal of Experimental Social Psychology*, *44*(1), 26–36.
- Stroebe, W., Van Koningsbruggen, G. M., Papies, E. K., & Aarts, H. (2013). Why most dieters fail but some succeed: A goal conflict model of eating behavior. *Psychological Review*, *120*(1), 110–138.
- Sturm, R., & Cohen, D. A. (2009). Zoning for health? The year-old ban on new fast-food restaurants in South LA. *Health Affairs*, *28*(6), 1088–1097.
- Tomiyaama, A. J., Mann, T., & Comer, L. (2009). Triggers of eating in everyday life. *Appetite*, *52*(1), 72–82.
- USDA Report to Congress (2003, July 1). National dairy promotion and research program and the national fluid milk processor promotion program. Retrieved November 30, 2015 from <http://documents.nytimes.com/documents-on-marketing-cheese#document/p4>
- USDA Report to Congress (2007, July 1). National dairy promotion and research program and the national fluid milk processor promotion program. Retrieved November 30, 2015 from <http://documents.nytimes.com/documents-on-marketing-cheese#document/p16>
- van't Riet, J., Sijtsma, S. J., Dagevos, H., & De Bruijn, G. J. (2011). The importance of habits in eating behaviour. *An overview and recommendations for future Research*. *Appetite*, *57*(3), 585–596.
- Vucenik, I., & Stains, J. P. (2012). Obesity and cancer risk: Evidence, mechanisms, and recommendations. *Annals of the New York Academy of Sciences*, *1271*(1), 37–43.
- Wagner, H. S., Howland, M., & Mann, T. (2015). Effects of subtle and explicit health messages on food choice. *Health Psychology*, *34*(1), 79–82.
- Wang, Y., & Beydoun, M. A. (2007). The obesity epidemic in the United States—Gender, age, socioeconomic, racial/ethnic, and geographic characteristics: A systematic review and meta-regression analysis. *Epidemiologic Reviews*, *29*(1), 6–28.
- Wang, Y., Beydoun, M. A., Liang, L., Caballero, B., & Kumanyika, S. K. (2008). Will all Americans become overweight or obese? Estimating the progression and cost of the US obesity epidemic. *Obesity*, *16*(10), 2323–2330.
- Wang, Y., & Lobstein, T. I. M. (2006). Worldwide trends in childhood overweight and obesity. *International Journal of Pediatric Obesity*, *1*(1), 11–25.
- Wansink, B., & Kim, J. (2005). Bad popcorn in big buckets: portion size can influence intake as much as taste. *Journal of Nutrition Education and Behavior*, *37*(5), 242–245.
- Wansink, B., Painter, J. E., & Lee, Y. K. (2006). The office candy dish: Proximity's influence on estimated and actual consumption. *International Journal of Obesity*, *30*(5), 871–875.
- Wansink, B., Painter, J. E., & North, J. (2005). Bottomless bowls: Why visual cues of portion size may influence intake. *Obesity Research*, *13*(1), 93–100.
- Ward, A., & Mann, T. (2000). Don't mind if I do: Disinhibited eating under cognitive load. *Journal of Personality and Social Psychology*, *78*(4), 753–763.

- White House Task Force on Childhood Obesity (2010, May). Solving the problem of childhood obesity with a generation. Retrieved November 30, 2015 from http://www.letsmove.gov/sites/letsmove.gov/files/TaskForce_on_Childhood_Obesity_May2010_FullReport.pdf
- Wilcox, K., Vallen, B., Block, L., & Fitzsimons, G. J. (2009). Vicarious goal fulfillment: When the mere presence of a healthy option leads to an ironically indulgent decision. *Journal of Consumer Research*, 36(3), 380–393.
- Windschitl, P. D. (2002). Judging the accuracy of a likelihood judgment: The case of smoking risk. *Journal of Behavioral Decision Making*, 15, 19–35.
- Young, L. R., & Nestle, M. (2002). The contribution of expanding portion sizes to the US obesity epidemic. *American Journal of Public Health*, 92(2), 246–249.
- Zhang, Y., Fishbach, A., & Kruglanski, A. W. (2007). The dilution model: How additional goals undermine the perceived instrumentality of a shared path. *Journal of Personality and Social Psychology*, 92(3), 389–401.

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