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Successful Dieting in Tempting Environments: Mission Impossible?

Written by *Guido M. van Koningsbruggen, Wolfgang Stroebe, & Henk Aarts* in Issue 11

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One of the areas in which temptations often interfere with people's self-control is the domain of eating and dieting behavior. In the present article, we review research on the psychological processes underlying the failures and successes of chronic dieters in resisting food temptations. A goal conflict model of eating as well as research testing this model is presented to understand the difficulties that dieters face in our Western food-rich environment. In addition, we discuss how we may boost self-control to prevent dieters from giving in to temptation.

Watch a movie or study for an exam? Sleep late or go to the gym? Take this chocolate or not? We often have to choose between things we want to do and things we think we ought to do. Although tempting alternatives offer immediate satisfaction, such as the pleasure of eating a piece of chocolate, they often challenge our striving for higher-order goals that offer long-term benefits (e.g., a slim figure). The ability to overcome our impulses and to resolve such conflicts in favor of the long-term goal is called self-control (e.g., Baumeister & Heatherton, 1996; Metcalfe & Mischel, 1999). One of the areas in which temptations seem particularly likely to interfere with people's self-control is the domain of eating and dieting behavior.

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In most Western countries where overweight and obesity have been increasing dramatically, dieting has become a popular means of weight control (Kruger, Galuska, Serdula, & Jones, 2004). Efforts at controlling or reducing weight are recommendable as overweight and obesity are associated with serious health problems, such as increased risk of cardiovascular diseases, diabetes, and some cancers (Stroebe, 2008). Moreover, overweight and obese people are likely to experience bias, stigma, and discrimination (Puhl & Brownell, 2001) as well as increased body dissatisfaction (Schwartz & Brownell, 2004) and lower levels of self-esteem (Miller & Downey, 1999). Thus, dieting as a means of weight control may reduce the negative health, social, and psychological consequences of being overweight.

Whereas many dieters are successful in losing weight in the short run, most fail in maintaining weight loss over time (Jeffery et al., 2000). One group seems especially unsuccessful in controlling food intake: Chronic dieters (or restrained eaters; Herman & Polivy, 1980): highly motivated to restrict their calorie intake in order to control their body weight. However, they are rather unsuccessful dieters as they are not only known for their food restriction, but also for their repeated lapses of restraint." Why is it so difficult for **chronic dieters** (from now on simply referred to as "dieters") to meet their dieting goals? It has been proposed that a "toxic environment" where palatable (calorically-dense) foods are highly visible and available is responsible for these difficulties in weight control and the increase in obesity (Wadden, Brownell, & Foster, 2002). Indeed, environmental cues such as the sight, smell, or taste of palatable food easily disrupt dieters' self-control (Fedoroff, Polivy, & Herman, 1997, 2003; Harris, Bargh, & Brownell, 2009;

Herman & Mack, 1975). For instance, Fedoroff and colleagues (1997) exposed participants to the smell of pizza prior to taking part in a pizza taste test. It was found that such a cue more strongly affected the eating behavior of dieters than of normal eaters: Dieters consumed more pizza after smelling it. However, not all dieters fail to resist temptations. There are dieters who are successful in controlling their food intake. In this article, we review research on the psychological processes underlying the failures and successes of dieters in resisting food temptations. Additionally, we discuss how we may boost self-control to prevent dieters from giving in to temptation.

Why Most Dieters Fail

Recent explanations of dieters' self-regulatory failures adopted the idea that eating is often driven by anticipated pleasure rather than people's need for calories (Lowe & Butryn, 2007; see Stroebe, 2008, for a review of theories and research). The goal conflict model of eating (Stroebe, Mensink, Aarts, Schut, & Kruglanski, 2008) proposes that dieters' difficulties in resisting food temptations results from a conflict between two incompatible goals: The eating enjoyment goal and the dieting goal. Although dieters want to enjoy the pleasure of eating palatable food, they also want to lose (or at least not gain) weight. Environmental cues signaling palatable food have a strong positive incentive value for dieters. Think of, for instance, signs of fast food restaurant or delicious cakes on display in the window of a bakery. According to the goal conflict model, such cues spontaneously activate (prime) the eating enjoyment goal in dieters (increase its **cognitive accessibility**), while inhibiting the dieting goal (decrease its cognitive accessibility; Shah, Friedman, & Kruglanski, 2002). As a result, the eating behavior of dieters will be guided by their eating enjoyment goal instead of their dieting goal, which can explain why many dieters cannot resist temptations. Thus, we plan to order a salad, but after seeing all kinds of palatable dishes on the restaurant's menu, we spontaneously forget that we are dieting and order the hamburger with fries instead.

Recent research provided support for the goal conflict model. One line of research (Papies, Stroebe, & Aarts, 2007) examined whether dieters indeed spontaneously think about eating enjoyment when exposed to tempting food cues. Cognitive accessibility of this eating enjoyment goal was measured with a lexical decision task in which participants had to decide quickly and accurately whether a word was an existing word or not. Although participants responded to many words, the researchers were especially interested in their reaction times to some words that reflected the eating enjoyment goal (e.g., tasty). In this task, faster recognition times of the eating enjoyment words (the time needed to indicate that "tasty" is an existing word) reflect greater cognitive accessibility of the eating enjoyment goal. Thus, if you often think about eating enjoyment you should be much quicker to decide that "tasty" is a real word than when you rarely think about it. Before participants had to make a lexical decision, they were exposed to cues signaling tempting food or not. They quickly read sentences involving consumption of tempting (e.g., "Jack eats chocolate") or neutral food (e.g., "Jack eats raisins") and then were shown the word to which they had to respond. Results demonstrated that dieters, but not normal eaters, were faster in deciding that words reflecting eating enjoyment were existing words when they read about palatable food before making this decision rather than neutral food. Tempting food cues thus activate the eating enjoyment goal in dieters which subsequently influences their eating behavior.

But does thinking about tasty food also let dieters forget their dieting goal? This was tested in another line of research (Stroebe et al., 2008) in which participants again had to do a lexical decision task after having been exposed to tempting food cues. But this time the researchers were interested in their reaction times to words that reflected the dieting goal (e.g., slim, weight). Importantly, just before participants had to make a lexical decision, they were exposed to tempting food words (e.g., chocolate) or neutral words (e.g., neither). These words were flashed so briefly (23 ms) that participants could not really recognize them. Thus, they were subliminally primed with the eating enjoyment goal or not. Results demonstrated that dieters, but not normal eaters, were slower to respond to dieting words when primed with eating enjoyment, suggesting that the eating enjoyment goal inhibits the dieting goal.

Moreover, these processes seem to further boost dieters' positive evaluations of palatable food (Hofmann, Van Koningsbruggen, Stroebe, Ramanathan, & Aarts, in press) and affect basic perceptual processes (Papies, Stroebe, & Aarts, 2008a; Van Koningsbruggen, Stroebe, & Aarts, in press). For instance, Van Koningsbruggen and colleagues (in press) examined the impact of tempting food cues on size perception of food. In the food prime condition, meant to activate the eating enjoyment goal, participants were shown a cover of a culinary magazine depicting a tasty dessert. In the control condition, participants were shown a gardening magazine cover that was expected not to elicit thoughts about eating enjoyment. After some filler questions, participants had to estimate the size of an object as presented on a screen. They were unexpectedly shown a picture of a highly palatable food object: A chocolate muffin. Results showed that dieters, but not normal eaters, perceived the muffin as bigger when primed with the eating enjoyment goal. This enhanced size perception of "forbidden" foods increases the likelihood that palatable food items are detected in the environment and actually consumed.

These lines of research suggest that it is difficult for dieters to resist temptations because tempting food cues trigger the hedonic goal of eating enjoyment, while inhibiting the dieting goal. Does this really influence behavior? Yes! There is a great deal of research showing that accessible goals can have a strong influence on people's behavior and that **priming** desirable goal states triggers motivated behavior to reach that goal (e.g., see Aarts, 2007). Moreover, numerous studies have already demonstrated that dieters are more likely to overeat when exposed to tempting food cues. Research inspired by the goal conflict model increases our understanding of the psychological

processes underlying these findings. Think back, for example, to the "pizza study" of Fedoroff and colleagues (1997), who demonstrated that priming participants with the smell of pizza increased pizza consumption for dieters. Smelling tasty pizza is likely to prime eating enjoyment for dieters. Consequently, the dieting goal is inhibited, while thoughts about eating enjoyment are flooding the mind of dieters. Moreover, dieters evaluate pizza more positively and perceive it as bigger than without pre-exposure to the pizza smell. These processes are likely to have made it very difficult for dieters to resist the temptation of eating the high-caloric pizza. Fortunately, not all dieters fail.

Why Some Dieters Succeed

Whereas the goal conflict model of eating (Stroebe, 2008) offers an explanation for why dieters often fail, the theory of temptation-elicited goal activation (Fishbach, Friedman, & Kruglanski, 2003) suggests that tempting food cues can also initiate processes that should lead to successful self-control. Fishbach and colleagues (2003) suggested that there are successful dieters for whom temptations increase the cognitive accessibility of long-term goals that are typically undermined by these temptations. They argue that a facilitative link between temptation and goal develops when people repeatedly and *successfully* exert self-control in tempting situations. For instance, if you have been able for some time to say no when offered a piece of cake on birthday parties because you are on a diet, a link between cakes and dieting may develop. The next time that you are exposed to cake you should automatically activate your dieting goal which should make it easier to turn down the piece of cake.

Indeed, research showed that when participants were primed with tempting food, the accessibility of the dieting goal was increased for those who were weight concerned and perceived themselves to be successful dieters (Fishbach et al., 2003). Perceived success was measured by asking participants to indicate the extent to which they were successful in watching their weight, in losing weight and how difficult they found it to stay in shape. However, you may have noticed that these findings contradict the goal conflict model and earlier research (Stroebe et al., 2008) as weight-concerned participants did not inhibit the dieting goal. Subsequent research using the Fishbach-measure of success and a lexical decision task to assess the accessibility of the dieting goal following tempting food primes resolved this inconsistency by showing that tempting food cues inhibit the dieting goal in unsuccessful dieters, but activate this goal in successful dieters (Papies, Stroebe, & Aarts, 2008b). These differences in dieting goal accessibility between unsuccessful and successful dieters have recently been found to impact both perceptual processes and dieters' intention-behavior relationship.

For instance, Van Koningsbruggen et al. (in press) not only assessed size perception of muffins, but in another study asked participants to estimate the size of an apple: Food instrumental for reaching the dieting goal. Results showed that the tempting food prime increased the perceived size of the apple for successful dieters, but decreased it for unsuccessful dieters. Perceiving healthy food in the environment as bigger (vs. smaller) increases (vs. decreases) the likelihood that these foods are detected and consumed. However, when exposed to a dieting magazine—increasing dieting goal accessibility for both unsuccessful and successful dieters—all dieters perceived the apple as bigger.

In another study (Papies et al., 2008b), dieters reported their intentions to refrain from eating several palatable foods the next two weeks. Two weeks later, they were asked how often they had eaten the foods. Results revealed that only successful dieters acted in line with their good intentions. For them, intentions predicted behavior, such that stronger not-eating intentions corresponded with eating them less. Unsuccessful dieters did not act according to their intentions: Intentions did not predict behavior. Moreover, in this and the Van Koningsbruggen et al. (in press) study, successful dieters had a lower Body Mass Index, suggesting they are also successful in the long term.

Thus, some dieters appear successful in pursuing their diet and controlling food intake when tempted. While most tend to forget their dieting goal when tempted, successful dieters spontaneously think of dieting. Knowing this, is it possible to help unsuccessful dieters to become more successful?

Boosting Self-Control of Unsuccessful Dieters

The reviewed research implies that increasing dieting goal accessibility in unsuccessful dieters should boost their ability to resist food temptations. Indeed, dieters are more successful when they are reminded of their dieting goal. For instance, dieters more often chose an apple over a Twix-bar as a gift when primed with dieting (Fishbach et al., 2003), and dieters ate less snacks after exposure to diet-products in television commercials (Anschutz, Van Strien, & Engels, 2008). However, in these studies only short-term responses were assessed and the experimenter provided the diet-reminders. For unsuccessful dieters, it would actually be more efficient if they could prime themselves with the dieting goal in tempting situations. One recent study (Van Koningsbruggen, Stroebe, Papies, & Aarts, 2010) examined whether this may be achieved by using a specific planning strategy, the formation of **implementation intentions**

Implementation intentions are behavioral plans which specify the when, where, and how of what one will do to reach a certain goal. Forming such detailed intentions greatly facilitates goal attainment (Gollwitzer & Sheeran, 2006). In the Van Koningsbruggen et al. (2010) study, participants formed implementation intentions for several palatable food items (e.g., cookies). Participants in the implementation intentions condition were asked "Please tell yourself: The next time that I am tempted to eat cookies, then I will think of dieting!" Participants then repeated this action for four other food items. Control participants did not form these plans. Results demonstrated that, after two weeks, unsuccessful dieters consumed less of the foodstuffs after this specific act of planning than their unsuccessful counterparts in the control condition.

Conclusion

We reviewed research on the psychological processes underlying the failures and successes of dieters in resisting food temptations. In fact, in our Western food-rich environments we are surrounded by cues signaling palatable food making it far from easy for dieters to ward off all temptations. At the same time, research suggests that it is not a mission impossible for all dieters. What is on the dieter's mind in tempting situations determines the success rate. If the dieter is consumed by thoughts of how delicious the food will be, the dieter will fail. But if the dieter manages to keep his or her long-term dieting goal in mind, he or she greatly improves the chance of success. Indeed, simple reminders of one's diet (e.g., through exposure to a health magazine or a plan to think about your diet in tempting situations) can lead to success. Perhaps, the alleged mission impossible of exerting self-control in food-rich environments will be completed by more and more dieters after all.

Glossary

Chronic dieters or restrained eaters

(Herman & Polivy, 1980): highly motivated to restrict their calorie intake in order to control their body weight. However, they are rather unsuccessful dieters as they are not only known for their food restriction, but also for their repeated lapses of restraint.

Cognitive accessibility: refers to the ease or speed with which information stored in memory comes to mind (i.e., can be retrieved).

Implementation intentions: detailed behavioral plans which specify the when, where, and how of what one will do to reach a certain goal (Gollwitzer & Sheeran, 2006). Normal intentions only specify what one intends to do. For instance, a normal intention might be "I intend to eat less chocolate", whereas an implementation intention is much more specific and may look like "If I order a dessert in the restaurant, then I will order a fruit salad (to reach my goal of eating less chocolate)!"

Priming: refers to the phenomenon that exposure to an object or word in one context increases the cognitive accessibility of that object or concept in people's mind as well as the accessibility of related objects or concepts. These activated concepts influence people's behavior in subsequent unrelated contexts without them being aware of this influence (Bargh & Chartrand, 1999).

References

- Aarts, H. (2007). *Health and goal-directed behavior: The nonconscious regulation and motivation of goals and their pursuit*. *Health Psychology Review*, 1, 53-82.
- Anschutz, D. J., Van Strien, T., & Engels, R. C. M. E. (2008). *Exposure to slim images in mass media: Television commercials as reminders of restriction in restrained eaters*. *Health Psychology*, 27, 401-408.
- Bargh, J. A., & Chartrand, T. L. (1999). *The unbearable automaticity of being*. *American Psychologist*, 54, 462-479.
- Baumeister, R. F., & Heatherton, T. F. (1996). *Self-regulation failure: An overview*. *Psychological Inquiry*, 7, 1-15.
- Fedoroff, I. C., Polivy, J., & Herman, C. P. (1997). *The effect of pre-exposure to food cues on the eating behavior of restrained and unrestrained eaters*. *Appetite*, 28, 33-47.
- Fedoroff, I. C., Polivy, J., & Herman, C. P. (2003). *The specificity of restrained versus unrestrained eaters' response to food cues: General desire to eat, or craving for the cued food?* *Appetite*, 41, 7-13.
- Fishbach, A., Friedman, R. S., & Kruglanski, A. W. (2003). *Leading us not unto temptation: Momentary allurements elicit overriding goal activation*. *Journal of Personality and Social Psychology*, 84, 296-309.
- Gollwitzer, P. M., & Sheeran, P. (2006). *Implementation intentions and goal achievement: A meta-analysis of effects and processes*. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 38, pp. 69-119). San Diego, CA: Elsevier.
- Harris, J. L., Bargh, J. A., & Brownell, K. D. (2009). *Priming effects of television food advertising on eating behavior*. *Health Psychology*, 28, 404-413.
- Herman, C. P., & Mack, D. (1975). *Restrained and unrestrained eating*. *Journal of Personality*, 43, 647-660.
- Herman, C. P., & Polivy, J. (1980). *Restrained eating*. In A. J. Stunkard (Ed.), *Obesity* (pp. 208-225). Philadelphia: Saunders.
- Hofmann, W., Van Koningsbruggen, G. M., Stroebe, W., Ramanathan, S., & Aarts, H. (in press). *As pleasure unfolds: Hedonic responses to tempting food*. *Psychological Science*.
- Jeffery, R. W., Epstein, L. H., Wilson, G. T., Drenowski, A., Stunkard, A. J., & Wing, R. R. (2000). *Long-term maintenance of weight loss: Current status*. *Health Psychology*, 19, 5-16.
- Kruger, J., Galuska, D. A., Serdula, M. K., & Jones, D. A. (2004). *Attempting to lose weight: Specific practices among U.S. adults*. *American Journal of Preventive Medicine*, 26, 402-406.
- Lowe, M. R., & Butryn, M. L. (2007). *Hedonic hunger: A new dimension of appetite?* *Physiology & Behavior*, 91, 432-439.
- Metcalfe, J., & Mischel, W. (1999). *A hot/cool-system analysis of delay of gratification: Dynamics of willpower*. *Psychological Review*, 106, 3-19.
- Miller, C. T., & Downey, K. T. (1999). *A meta-analysis of heavyweight and self-esteem*. *Personality and Social Psychology Review*, 3, 68-84.
- Papies, E. K., Stroebe, W., & Aarts, H. (2007). *Pleasure in the mind: Restrained eating and spontaneous hedonic thoughts about food*. *Journal of Experimental Social Psychology*, 43, 810-817.
- Papies, E. K., Stroebe, W., & Aarts, H. (2008a). *The allure of forbidden food: On the role of attention in self-regulation*. *Journal of Experimental Social Psychology*, 44, 1283-1292.
- Papies, E. K., Stroebe, W., & Aarts, H. (2008b). *Healthy cognition: Processes of self-regulatory success in restrained eating*. *Personality and Social Psychology Bulletin*, 34, 1290-1300.
- Puhl, R., & Brownell, K. D. (2001). *Bias, discrimination, and obesity*. *Obesity Research*, 9, 788-805.
- Schwartz, M. B., & Brownell, K. D. (2004). *Obesity and body image*. *Body Image*, 1, 43-56.
- 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.
- Stroebe, W. (2008). *Dieting, overweight, and obesity: Self-regulation in a food-rich environment*. Washington, DC: American Psychological Association.
- 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, 26-36.
- Van Koningsbruggen, G. M., Stroebe, W., & Aarts, H. (in press). *Through the eyes of dieters: Biased size perception of food objects following tempting food primes*. *Journal of Experimental Social Psychology*.
- Van Koningsbruggen, G. M., Stroebe, W., Papies, E. K., & Aarts, H. (2010). *Implementation intentions as goal primes: Boosting self-control in tempting environments*. Manuscript under review.
- Wadden, T. A., Brownell, K. D., & Foster, G. D. (2002). *Obesity: Responding to the global epidemic*. *Journal of Consulting and Clinical Psychology*, 70, 510-525.

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