The "Sprinter effect": When self-control and involvement stand in the way of sequential performance

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Abstract

This research examines the joint effect of dispositional self-control and situational involvement on performance in two successive resource-demanding tasks. We demonstrate that being highly involved and having high self-control facilitates high performance in the first task but, contrary to intuition, may jeopardize performance in a second, unexpected task. We term this the "sprinter effect" and demonstrate it in both lab and field settings. We further explore how a "marathon" mindset can debias this effect.
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John and Linda decide to buy a new dining room set. They visit a well-known store; subject to a limited budget, they compare prices, quality, and dimensions of different sets. Although they are very tempted to buy a beautiful oak-carved set they both love, they decide to go with a much cheaper set instead. After agreeing on their purchase, they head toward the cashiers, passing dinnerware and silverware displays. A beautiful set of porcelain dishes catches their eye: These dishes would look so nice on their new dining table, they think, as they grab a box of the porcelain dishes in the spur of the moment and continue to the cashier without glancing at the price. On their way home, they wonder how they could have spent so much time and effort making calculations and deliberating on the dining room set, yet gave almost no thought to the overly expensive dishes, which, to be honest, they did not really need. It was so not like them... or was it?

Consumers' everyday behavior includes sequences of tasks, most of which demand some degree of self-regulation; some of these tasks might be anticipated and some might not. In many cases, consumers start with a planned task, such as going for a workout at the gym, going to the grocery for weekly shopping, or buying a dining room set. However, another task often tags on to such consumption tasks: a task that was not pre-planned, such as buying a fruit shake at the juice bar after the workout, purchasing an item on sale at the grocery register, or buying a set of fancy porcelain dishes that match the new dining table. These second tasks are also important to consumers' financial and physical well-being, but because they are unplanned, in many cases consumers fail to prepare for them. It is important, therefore, to learn how performance in an initial task affects performance in the following unexpected task.

The literature has mainly focused on single drivers for enhanced performance in a depleted state; such drivers include increasing glucose levels in the blood (Gailliot & Baumeister, 2007; Gailliot et al., 2007), introducing humor (Tice, Baumeister, Shmueli, & Muraven, 2007), enhancing self-efficacy (Martijn, Tenbult, Merckelbach, Dreezens, & de Vries, 2002), and raising situational involvement (Muraven & Slessareva, 2003). Furthermore, studies have tested the effect of such drivers as boosters of

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performance after participants are depleted (e.g., Gailliot et al., 2007; Muraven & Slessareva, 2003).

The current paper examines the joint effect of two drivers for enhancing performance under depleted states: dispositional self-control and situational involvement. It demonstrates, unexpectedly, that utilizing high levels of both drivers simultaneously prior to two successive tasks might yield poor performance in the second of the two tasks. More specifically, the present research proposes that consumers with high task involvement and high self-control perform well in an expected self-regulating task but exhibit a severe drop in performance when faced with a second, unexpected self-regulating task. We attribute the drop in performance to consumers' mindset and suggest that as long as consumers do not anticipate a sequence of tasks, they act in what can be termed a *sprint mindset*. This mindset encourages consumers to invest an excessive amount of effort in performing a planned task. As a result, they are left with insufficient resources to perform well in a second, unplanned task. However, if highly involved consumers with high self-control anticipate two tasks, they act in what can be termed a *marathon mindset*. Under this mindset these consumers manage their resource allocation over the two tasks more efficiently, so as to ensure reserving resources for adequate performance in the second task.

Following the previously mentioned data, readers of this paper are invited to adopt a marathon mindset and consider in advance the paper's outline, so as to avoid experiencing depletion after the first sections and severe drop in their processing ability towards the last sections. The paper begins with theoretical background on self-regulation and resource depletion. We then proceed to describe the sprinter effect in detail and suggest means to debias it when applying different mindsets: sprint and marathon.

Theoretical background

According to the resource view of self-regulation, individuals have a limited pool of resources that they exercise when they actively change, override, or otherwise regulate their responses to stimuli (Baumeister & Heatherton, 1996; Muraven & Baumeister, 2000). The notion that a single and limited pool of resources is used in many different tasks leads to the conception that engagement in a stream of self-regulating tasks reduces one's performance in each successive task (Baumeister, Bratslavsky, Muraven, & Tice, 1998). The negative effects of resource depletion on performance in self-regulating tasks have been extensively explored. For example, depletion of resources was found to increase smoking and overeating (Vohs & Heatherton, 2000), alcohol abuse (Muraven, Collins, & Neinhaus, 2002), credit card use (Mansfield, Pinto, & Parente, 2003), impulsive consumption (Vohs & Faber, 2003) and aggressive behavior (Stucke & Baumeister, 2006).

In consumer self-regulation tasks, one of the most prominent dispositional attributes is self-control, which is the stable ability to override or inhibit behaviors, urges, emotions, or desires that would otherwise interfere with goal-directed behavior (Baumeister, Vohs, & Tice, 2007). This dispositional attribute is considered a facilitating driver of performance under depleted states. For example, when consumers strive to accomplish challenging and demanding goals such as adopting healthy behaviors (e.g., Baumeister & Heatherton, 1996; Tangney, Baumeister, & Boone, 2004) and adhering to rational consumption strategies (e.g., Baumeister, 2002; Mansfield et al., 2003; Vohs & Faber, 2003; Wertenbroch, 1998), those high in dispositional self-control are more able to regulate their behavior and accomplish their goals, even under depleted states. For example, Vohs and Faber's (2007) experiment 3 showed that participants who carried out a depleting task (versus a non-depleting task) spent impulsively more money in a subsequent task if they had a high personality tendency to buy impulsively (i.e. low in self-control) than if they had a low tendency to buy impulsively (i.e. high in self-control).

Another prominent driver when performing self-regulation tasks relates to consumers' involvement. Situational involvement can be enhanced through product description (Shamdasani, Stanaland, & Tan, 2001), through advertisement message (Sawyer & Howard, 1991), and/or by increasing the decision's importance (Celsi & Olson, 1988; Zhang & Markman, 2001). When involvement is high, the object or goal to which a choice or behavior is directed is perceived as significantly important and desired (e.g., Johar, 1995; Zhang & Markman, 2001). Muraven and Slessareva (2003) found that enhancing situational involvement through manipulation of the importance and/or the attractiveness of the tasks' outcome facilitated performance under a depleted state. In one of their studies (experiment 3), participants whose resources had been depleted by a prior self-regulatory task showed a drop in their ability to perform a subsequent self-regulation task of consuming a healthy but bad-tasting beverage (i.e., they consumed relatively little of it). However, when they were offered a cash incentive, they consumed substantially more of the healthy beverage and drank even more than did non-depleted participants. These findings suggest that involvement enabled participants to perform well even after being depleted.

Interestingly, however, the literature thus far has given scant attention to the joint effect of involvement as a situational driver and self-control as a dispositional driver. In daily consumption-related tasks, both situational and dispositional drivers inevitably work together; the former is state-dependent, while the latter is a more stable tendency. Contrary to past studies, our research considers the effect of these two drivers together on performance in a sequence of self-regulating tasks. In this way we attempt to capture more of the complexities of a consumer's natural decision-making environment.

As reviewed earlier, past findings suggest that situational involvement and dispositional self-control work in the same direction.[2] Each factor helps resource-depleted consumers to regulate their behavior and achieve high levels of performance. Common sense would have us assume, then, that having high

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[2] The positive effect of each driver was also confirmed in two preliminary tests. The first pre-test ($n = 236$; $M_{age} = 34$) confirmed that situational involvement enhances performance in two successive self-regulating tasks (task 1 and task 2) when involvement is induced *prior* to the two tasks ($F_{task1}(1,232) = 16.49$; $F_{task2}(1,232) = 28.99$; both $p < .05$). In the second pre-test ($n = 85$; $M_{age} = 35$) self-control enhanced performance in two successive self-regulating tasks. Participants with high self-control performed better than participants low in self-control in both task1 and task2 ($F_{task1}(1,84) = 5.48$; $F_{task2}(1,83) = 5.21$; both $p < .05$).

self-control as well as high involvement should strongly drive the individual to improve task performance by exhibiting rational and prudent behavior, even in a depleted state. In the current research, however, we wish to demonstrate that under certain conditions depleted consumers experience a drop in performance, specifically because they are high in both self-control and involvement. We term this phenomenon the "sprinter effect."

The sprinter effect

When engaged in a self-regulating task, such as the rational and responsible purchase of a dining room set within a restricted budget, self-control and involvement serve as constructive forces that enhance performance. That is, the higher consumers' self-control and involvement, the more they will exert effort and resources in accomplishing the task. According to the notion that one's pool of resources is limited (Baumeister & Heatherton, 1996; Muraven & Baumeister, 2000), the amount of resources remaining after the task is completed is naturally reduced. That is, the better one performs the first task, the fewer available resources one will have for the second task. Thus, when faced with a second, unexpected task, such as a spontaneous purchase decision involving a set of fancy tableware, performance is mostly determined by whether adequate levels of resources are accessible for executing it.

This paper proposes that highly involved, high-self-control consumers are most likely to exhaust their resources in the first of two consecutive tasks, to the point where not enough resources remain available for adequate performance in the second, unplanned task.

Consumers who have high levels of one driver (either involvement or self control) but not of the other may also invest efforts in the first task, but to a lesser extent compared with consumers who have high levels of both drivers. Consumers who are high in either self-control or involvement (but not both) are more likely, after the first task, to sustain enough resources for investment in the second, unplanned task. Thus, we propose that in the first, planned task, high-self-control, highly involved consumers will perform better than consumers who have high levels of only one driver, but counter-intuitively, in the second, unplanned task they will perform worse.

The sprint versus the marathon mindsets

It would be an over-generalization to claim that being both highly involved and high in self-control *always* has an adverse effect on performance in the second of two sequential tasks. Discovering the underlying process that leads consumers to exhaust their efforts in the first task may suggest ways to reduce the severe drop in performance in the second task.

A resource conservation strategy refers to one's ability to allocate resources optimally throughout a sequence of tasks. Past research suggests that activating a resource conservation strategy may help performance in a stream of self-control-demanding tasks. For example, Muraven, Shmueli and Burkley's (2006) experiment 4 gave participants a depleting task and then informed them that they were about to perform two additional tasks. Some of the participants were told that the final, third task would require self-control, and some were not told it would require self-control. Participants who knew in advance about the upcoming self-control-demanding third task did not perform well in the second task compared with participants who did not think the upcoming third task would demand self-control. The authors explain that the reduced performance in the second task is an indication that participants were conserving some of their resources for the third task. Furthermore, participants' performance in the third task was found to be inversely related to their performance in the second task. That is, when a participants' performance on the second task was low, their subsequent performance on the third task was high. These findings suggest that when individuals anticipate a series of self-regulating tasks, they try to control the amount of resources used in an initial task to reserve resources for the later task.

Consumers are less likely to apply resource allocation strategies when they do not anticipate a series of tasks; (i.e. under a sprint mindset). However, if consumers anticipate a series of tasks in advance, they may adopt what we term a marathon mindset. Following the metaphor of athletics, when a runner prepares for a short sprint and does not expect to run in any additional races she will put all available effort into the first sprint. However, if the same runner is informed she is about to run a marathon consisting of four consecutive races, she will probably manage her resources differently, reserving sufficient strength for the final races (Baden, Warwick-Evans, & Lakomy, 2004). In a marathon, the runner must restrain herself from running faster in the first race, even though she may be capable of doing so and even if other runners pass her. Hence, self-control and involvement are required in order to apply the resource conservation strategy over the entire series of races. The runner must overcome her urge to increase pace in the first race to conserve energy for the final race.

The concepts of the marathon and sprint mindsets build on and extend the work of Muraven et al. (2006) in three significant ways. First, Muraven and colleagues demonstrate that when one is in a depleted state, motivation to reserve resources for future exertion is higher than when one is not in a depleted state. Our research takes this idea one step further and demonstrates that even prior to a depletion state, that is, when one merely anticipates exerting resources in the near future, motivation to apply the resource reservation strategy will be activated. We achieve this by examining two conditions, a marathon mindset condition and a sprint mindset condition. Before engaging in the first, depleting task, participants in the marathon mindset condition are notified up front about all upcoming tasks, whereas participants in the sprint mindset condition are not told in advance about the tasks they will be asked to perform.

Second, Muraven et al. (2006) demonstrated the broad effect of applying the resource reservation strategy, and the present research examines specific consumer characteristics that activate this strategy. More specifically, this research will show that consumers who are both highly involved and high in self-control are the most likely to apply this strategy in comparison to those who are high on only one driver.

Third, and most important, while Muraven and his colleagues focused mainly on (what we call) the marathon mindset, the current research explores both the sprint and the marathon mindsets. This broader perspective enables us to show that consumers' default mindset is the sprint mindset, even among individuals with high involvement and high self-control, thus showing the importance of the phenomenon, which affects many aspects of our everyday life.

To summarize, we hypothesize that in a series of two self-regulating tasks, resource-depleted individuals will behave as follows:

H1. When faced with an unexpected second task, resource-depleted individuals who are high in both dispositional self-control and situational involvement will perform the task *worse* than people who are high in only one such driver.

H2. When faced with an expected second task, people who are high in both dispositional self-control and situational involvement will perform the task *better* than people who are high in only one driver.

Four studies examine these hypotheses. Study 1, will demonstrate the sprinter effect on actual impulsive buying, among real shoppers in a grocery store. Study 2, will explore the sprinter effect in a lab setting, in which we evaluate participants' performance in both the first and second tasks. Studies 3 and 4, will focus on the underlying process. Study 3, will compare performance of depleted participants under either the sprint or the marathon mindset. Finally, Study 4 will compare, for each mindset, the performance of either depleted or non-depleted participants.

Study 1—The sprinter effect and impulsive buying at a grocery store

The purpose of Study 1 was to demonstrate the sprinter effect in a real consumption environment. To that end, the study was conducted in a grocery store with real shoppers. In this study, all participants were induced to be depleted, and both involvement and resource-depletion were activated before shoppers entered the store.

The stream of self-regulating tasks consisted of the following: purchasing planned items in the store before approaching the line to the cashier (task 1), and resisting buying unplanned items while waiting in line to pay (task 2). In other words, we viewed shoppers as performing two separate tasks in the store. Since consumers enter a grocery store for the purpose of purchasing certain items, and often these items appear on their shopping list, we considered this process the first, planned task. The second task, which is assumed to be unplanned, includes the decision of whether or not to buy any self-indulging, hedonic products that are displayed on the shelves near the cashier (e.g., chocolates, gum, salty snacks, soda, and magazines). Although one commonly waits in line to pay, shoppers rarely take this into account when mentally pre-planning their shopping trips. Two pretests affirmed our notions that buying items from the display near the cashier is an unanticipated task of resisting tempting products and that most purchase decisions made while waiting in line result from self-

control failure and an one's inability to resist such temptations.[3] Thus, shoppers do not plan to buy items while waiting in line to pay, nor do they consciously foresee that they might be tempted to buy such products. Therefore, they do not take pre-committing actions to help them resist the temptation that waits for them at the end of their shopping trip. They do not expect or plan ahead for this second task, which they are bound to face when waiting in line.

Method

Participants
Ninety-five shoppers (M_{age}=44) at a grocery store volunteered to participate in the experiment.

Procedure
Shoppers were approached twice: once before entering the grocery store and once after completing their shopping. Before entering the store, shoppers were invited to participate in what they were told was a study the store management was conducting about its shoppers. They we first asked to complete a short version of a self-report self-control assessment, next they were given the involvement manipulation, and finally they were given the attention allocation instructions designed to deplete their resources while shopping.

Self-control. In this study we used a short version of the Dispositional Self-Control (DSC) scale (Ein-Gar, Goldenberg, & Sagiv, 2008) containing the following two items: "I am able to work effectively toward long-term goals while resisting temptations along the way," and "Usually, when something tempts me, I manage to resist the temptation."

Situational involvement. The involvement manipulation was given after participants completed the short self-control questionnaire. More importantly and contrary to past studies (e.g., Muraven & Slessareva, 2003), the involvement manipulation was performed prior to both the depleting task and the subsequent task, that is, right before shoppers entered the store. Involvement was manipulated through stated sample size (Chakravarti & Janiszewski, 2003; Lee, 2009; Meyers-Levy & Maheswaran, 1992; Sengupta & Fitzsimons, 2004; Zhang & Markman, 2001). In the high-involvement condition, participants were told they

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[3] In the first pre-test participants (n=91, M_{age}=34) reported on a scale of 1 (not at all) to 5 (very much), that upon entering a store before starting their shopping, they do not consider (M=1.70, SD=1.05) or plan ahead (M=1.66, SD=1.02) to buy any products displayed on the shelves near the cashier. These reports were found to be significantly lower than the mid-scale value of 3 ($t_{consider}$(90)=−11.78, $t_{plan\ ahead}$(90)=−12.48, both p<.001). In the second pre-test participants reported on a 5-point scale ranging from 1 (not at all) to 5 (very much) that such unplanned purchases are a waste of money (M=3.60, SD=1.07; t(90)=5.37, p<.01), something one should avoid (M=3.77, SD=1.21; t(90)=6.05, p<.01), an expression of low self-control (M=3.34, SD=1.25; t(90)=2.6, p<.01), not a good bargain (reverse coded, M=2.02, SD=.98; t(90)=−9.5, p<.01), not smart behavior (reverse coded, M=1.93, SD=.92; t(90)=11.09, p<.01), and a self-indulgent act (M=3.67, SD=1.00; t(90)=6.39, p<.01). All reports were compared to the mid-scale value of 3.

were part of a small sample, whereas in the low-involvement condition they were told they were part of a large sample. Specifically, in this study, those in the low-involvement condition were told that they were taking part in a large-scale survey of more than 1000 shoppers, and that their responses would be combined with those of many other shoppers who participated in the survey. Those in the high-involvement condition were told that they were taking part in a small-scale survey of fewer than 50 shoppers and that their responses would be combined with those of a few other consumers who participated in the survey.[4]

Resource depletion during shopping trip (task 1).   To make sure participants would experience depletion while engaging in the first task, they were further asked to carry out an attention allocation task that resembles real-life attention–regulation actions performed by shoppers. In a pre-test we compared between shoppers who received the depleting attention allocation task and those who did not. In the resource-depleting condition, shoppers were instructed not to look at other shoppers' carts and, if they did so by mistake, to immediately look away. In the non-depleting condition, shoppers were instructed to conduct their shopping as they normally do. Expending cognitive resources to comply with the attention allocation instructions was expected to cause resource-depletion and thus leave shoppers with fewer available resources for enjoying other shopping-related tasks. As a result, participants in a resource-depleted state were expected to enjoy their shopping less than participants who were not in a depleted state. As expected shoppers in the depletion condition indeed reported enjoying their shopping much less ($M=2.0$, $SD=.50$) than shoppers in the non-depleting condition ($M=5.6$, $SD=.84$; t $(17)=11.81$, $p<.05$).[5] Therefore, the attention allocation instructions were used in the current experiment as a resource-depletion manipulation.

Impulsive buying (task 2).   As shoppers left the store after making payment, they were asked to indicate whether they had bought any items while standing in line that they had not planned to purchase.

In summary, when asked to avoid looking at others' carts, shoppers were "forced" into a depletion state. We expected that this would cause shoppers who were both highly involved and high in self-control to exhaust their resources while shopping, leaving them with little, if any, resources to resist the tempting products displayed on the shelves near the cashier.

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[4] This manipulation was also pre-tested among 21 shoppers. As expected, under the high-involvement condition, shoppers reported following instructions more seriously ($M=6.63$, $SD=.67$) than shoppers in the low-involvement condition ($M=4.7$, $SD=2.31$; $t(19)=-2.66$, $p<.05$). They also reported feeling they had a greater influence on the survey's results ($M=5.72$, $SD=1.10$) than shoppers in the low-involvement condition ($M=3.5$, $SD=2.06$; $t(19)=-3.21$, $p<.05$).

[5] There was no difference in reported enjoyment between high-versus low-self-control shoppers ($t(17)=-.92$, $p>.1$) or between high- or low-involvement shoppers ($t(17)=-.52$, $p>.1$). That is, as reported, only depleted shoppers found the shopping experience less enjoyable than did non-depleted shoppers.

Results

Self-control

The two items measuring self-control were positively correlated ($r=.52$, $p<.05$) and averaged. We designated each participant as either high or low in self-control according to a median split on the average score.

Impulsive buying

Participants were classified by their post-purchase reports as either buying unplanned items (coded as $1 =$ impulsive buying) or not (coded as $0 =$ no impulsive buying).

Fig. 1 presents the cross-tabs analysis showing results of engaging in impulsive buying as a function of involvement and self-control, when depleted. As hypothesized, highly involved participants with high self-control were more likely to engage in impulsive buying ($N=10$ (24); 41.7%) than participants with low involvement and high self-control ($N=2$ (32); 6.3%, $x^2(1,63)=6.68$, $p<.05$) or than highly involved participants with low self-control ($N=1$ (13); 7.7%, $x^2(1,37)=4.69$, $p<.05$). Interestingly, the highly involved shoppers with high self-control were even more likely to engage in impulsive purchases than shoppers with both low self-control and low involvement ($N=3$ (26); 11.5%, $x^2(1,50)=5.88$, $p<.05$).

We further strengthen the test of our predictions by conducting a binary regression wherein involvement and self-control (as a continuous variable) serve as predictors of impulsive buying. As expected, this analysis yielded a significant interaction effect, Wald $\chi^2=8.01$, $p<.05$.

In all subsequent studies in the paper we conducted regression analyses using the self-control measure as a continuous variable. In all analyses results replicated the ANOVA's findings. Detailed results are available from the authors.

Conclusions

These findings demonstrate the sprinter effect in an actual consumption situation. When depleted, highly involved shoppers with high self-control exhibited more impulse-buying than all
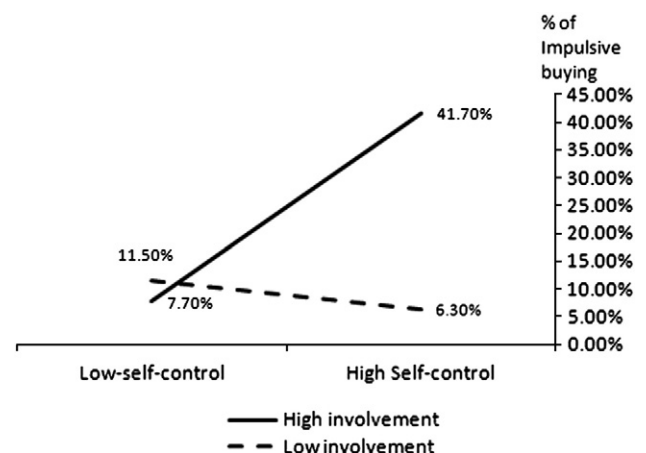

Fig. 1. Shoppers' impulsive buying under depletion as a function of involvement and self-control (Study 1).

other shoppers. This study shows how an effort to control one's attention in an ordinary consumption environment may cause such shoppers to fail to resist unexpected temptations.

A possible alternative explanation for this drop in performance may rely on the self-rewarding mechanism. Investing resources in self-regulation tasks depends on two antecedents: ability and motivation. It could be argued that participants had enough resources for investment in the second task (i.e. high ability), yet, they lacked the motivation to invest these resources. Thus, these shoppers' high levels of involvement and self-control may have led them to perform well in the first task and subsequently reward themselves by purchasing hedonic items from the shelf near the cashier.

Another potential explanation for a lack of motivation could be that participants with high self-control associated the high involvement with task 1 only (i.e., buying planned items before approaching the line to the cashier), and may have assumed that task 2 demanded less involvement (i.e., resisting the tempting products while waiting in line for the cashier). If so, it would only be consistent with high self-control not to invest effort in something that is not perceived as important.

Study 2, was designed to rule out these alternative explanations, that is, (a) to show that involvement is high in both the first and second tasks, and (b) to demonstrate the sprinter effect when the second task is not rewarding, for example, a self-regulating task that involves persistence in a frustrating activity rather than purchase of hedonic products.

Study 2—The sprinter effect and recognizing brand names

Study 2 extends the field research (Study 1) by demonstrating the full process of the sprinter effect. Unlike Study 1 and prior research in the domain of resource-depletion, this study reports performance in both task 1 and task 2, thus showing the shift in performance between the first task and the second one. This study is conducted in a lab setting in which: (a) situational involvement is manipulated prior to the two tasks, and the manipulation check is performed after the two tasks are completed; (b) performance in each of the tasks is measured separately in order to demonstrate the adequate performance in the first task in contrast with the drop in performance in the second task among the highly involved, high-self-control participants.

Method

Participants

Forty-seven participants ($M_{age}=32$) volunteered to complete an online survey and in return were included in a raffle for an amazon.com gift certificate worth $25.

Procedure and measures

Participants were told they are part of a study on detecting stimuli. As part of the study participants were informed they will fill a self-report personality evaluation and then will be given a stimuli detecting task. Thus, participants were expecting only one task.

Participants first completed a self-control questionnaire and were then randomly introduced to one of the two involvement manipulations. Next, all participants completed a resource-depleting task, which served as the first, expected task. In this study, all participants were assigned to the resource-depleting condition. Finally, participants were asked to complete a brand name recognition task, which served as the second, unexpected task.

Self-control. We used 17 items from the DSC scale by Ein-Gar et al. (2008). This scale measures self-control as the tendency to overcome or yield to two types of temptations: impulsive temptations (e.g., "I usually succeed in overcoming temptations") and procrastination temptations (e.g., "When I need to run errands, I usually put them off until the last minute"). (For the full list of items see Appendix.)

This measure was used because it is balanced across different aspects of self-control (e.g. impulsivity, procrastination, and persistence) and across the tendency to yield to versus overcome temptations. The scale has demonstrated construct and predictive validity (Ein-Gar et al., 2008), was validated on a total sample of 1495 participants taken from 12 different sub-samples ($M_{age}=32$), and has shown strong internal reliability ($\alpha=.87$) (Ein-Gar, Goldenberg, & Sagiv, 2007).

Situational involvement. All participants underwent a manipulation of situational involvement, similar to the one conducted in Study 1. In this study, however, the stated objectives of the research were also manipulated (Muraven & Slessareva, 2003). In the low-involvement condition, participants were told they would be participating in a survey on cognitive skills and were part of a large sample. Participants in the high-involvement condition were told they were part of a small sample and their task was under consideration for inclusion in a set of tasks aimed at identifying Alzheimer's disease (Muraven & Slessareva, 2003).

Manipulation check. At the end of the study, as a manipulation check for involvement, participants were asked to report the extent to which they thought their answers would have an impact on the survey's results, and the extent to which they were motivated to complete the tasks.

Resource depletion task (task 1). Participants were randomly assigned a resource-depleting task termed the "e" task. This two-part task was adopted from previous work conducted in the domain of resource-depletion (Baumeister et al., 1998; Wheeler, Brinol, & Hermann, 2007). In the first part, participants were asked to follow a rule—to count the number of times the letter "e" appeared in each of four paragraphs. In the second part, participants were asked to follow a new rule and by doing so to disregard the first rule. They were asked to count the number of "e"s appearing in each of four new paragraphs, except when another vowel followed the letter "e" in the same word or when the vowel was one letter removed from the letter "e" in either direction in the same word. Thus, participants were required to override a previously acquired rule. Such a task calls for inhibiting one's initial inclination to act according to the

previous rule. Overriding this inhibition exhausts one's resources.[6]

Brand name recognition task (task 2). Participants were asked to complete the brand name recognition task (Higgins, Roney, Crowe, & Hymes, 1994; Jain, Agrawal, & Maheswaran, 2006). All participants were given 15 "jumbled" known brand names (e.g., *tofsomcir*) and were asked to identify the brands (*Microsoft*). This task calls for persistence and stamina. On one hand individuals are curious to discover the brand names, but on the other hand they experience frustration. Participants need to resist the temptation to end their frustration and instead to persist in identifying as many brands as they can.

Results

Manipulation checks

Involvement. After completion of the two tasks, participants in the high-involvement condition reported having greater influence on the survey outcomes ($M=3.61, SD=1.07$) than did those in the low involvement condition ($M=2.67, SD=1.05, t(45)=-3.04, p<.05$). They also reported completing the tasks with greater motivation ($M=4.21, SD=.72$) than did those in the low involvement condition ($M=3.75, SD=.79, t(45)=2.09, p<.05$).

Resource depletion. All participants were assigned to the resource-depletion condition, which required overriding the first rule when performing the second task. To ensure that this task caused resource depletion, participants were asked to report how difficult it was to follow the second rule while overlooking the first rule, on a 5-point scale. We compared their mean score to the mid-point of the scale. Participants reported significantly enhanced difficulty in following the second rule ($M=3.54, SD=1.22$) compared to the mid-point of the scale ($M=3, t(47)=3.08, p<.05$).

Self-control. We used the DSC measure ($\alpha=.73$). Based on a median split, participants were designated as having high or low self-control.

Performance in a stream of tasks. We expect that participants high in both self-control and involvement to invest most of their resources in the resource-depletion task (task 1) and, hence, perform well in that task. However, the same group of participants was expected to exhibit a severe drop in performance when facing the second task.

Resource-depletion task (task 1). We conducted a 2 (high vs. low self-control) by 2 (high vs. low involvement) ANOVA with planned contrasts of performance in the first "e" task under the resource-depletion condition. Results show that participants with high self-control and high involvement performed better on the "e" task ($M=59.36, SD=10.29$) than did participants with high involvement and low self-control ($M=45.60, SD=14.00, F(1,40)=10.29, p<.05$), participants with low involvement and high self-control ($M=47.38, SD=9.69, F(1,40)=10.18, p<.05$), and participants with low involvement and low self-control ($M=38.60, SD=10.43, F(1,40)=19.60, p<.05$). In addition, and partly supporting previous findings, high-involvement participants with low self-control and low-involvement participants with high self-control performed significantly better than participants who were low in both involvement and self-control ($F(1,40)=8.78; F(1,40)=9.31$, both $p<.05$, respectively).

Brand name recognition task (task 2). We conducted a 2 (high vs. low self-control) by 2 (high vs. low involvement) ANOVA with planned contrasts of performance in the second task under the resource-depletion condition. Findings revealed a significant two-way interaction ($F(1,40)=25.06, p<.05$). As hypothesized, participants with high self-control and high involvement exhibited the sprinter effect—that is, they performed worse in the second task ($M=4.09, SD=2.16$) compared with participants with high involvement and low self-control ($M=7.70, SD=2.66, F(1,40)=4.10, p<.05$) or participants with high self-control and low involvement ($M=8.00, SD=2.38, F(1,40)=3.65, p<.05$). Interestingly, in the second task no significant difference occurred between participants with high levels of both drivers and those with low levels of both drivers ($M=4.70, SD=1.76, F(1,40)=.64, p>.1$). In other words, performance of participants who were both highly involved and high in self-control deteriorated to the level of the performance of participants who had no interest in the task, i.e., those low in involvement and in self-control. Similar to our observations for task 1, participants who had high involvement with low self-control or low involvement with high self-control exhibited better performance than did those with low involvement and low self-control ($F(1,40)=3.45, p<.05; F(1,40)=3.00, p<.05$, respectively). These findings are in line with existing research, which suggests a positive effect of either enhanced involvement or elevated self-control on performance under depletion.[7]

Fig. 2A and B presents the results for performance under a depleted state, both in the "e" task and in the brand recognition task, as a function of situational involvement and dispositional self-control.

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[6] This task was pre-tested among 85 participants ($M_{age}=35$). One-half of the participants received the depleting instructions as outlined earlier, while the second half received non-depleting instructions. In the non-depleting condition, participants received the same instructions in both parts of the task and applied them to different text paragraphs. Participants in the resource-depletion condition, which required overriding the first rule when performing the second task, reported greater difficulty in following the second rule ($M=3.45, SD=1.13$) than did those in the non-depleting task ($M=2.28, SD=1.05, t(83)=-4.95, p<.05$).

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[7] We carried out an additional repeated-measures analysis on the standardized scores of performance in the first and second tasks as a function of situational involvement and dispositional self-control under the resource-depletion condition, which indicated a significant three-way interaction effect ($F(1,40)=14.33, p<.05$), further emphasizing the turnover effect from high performance in task 1 to low performance in task 2.
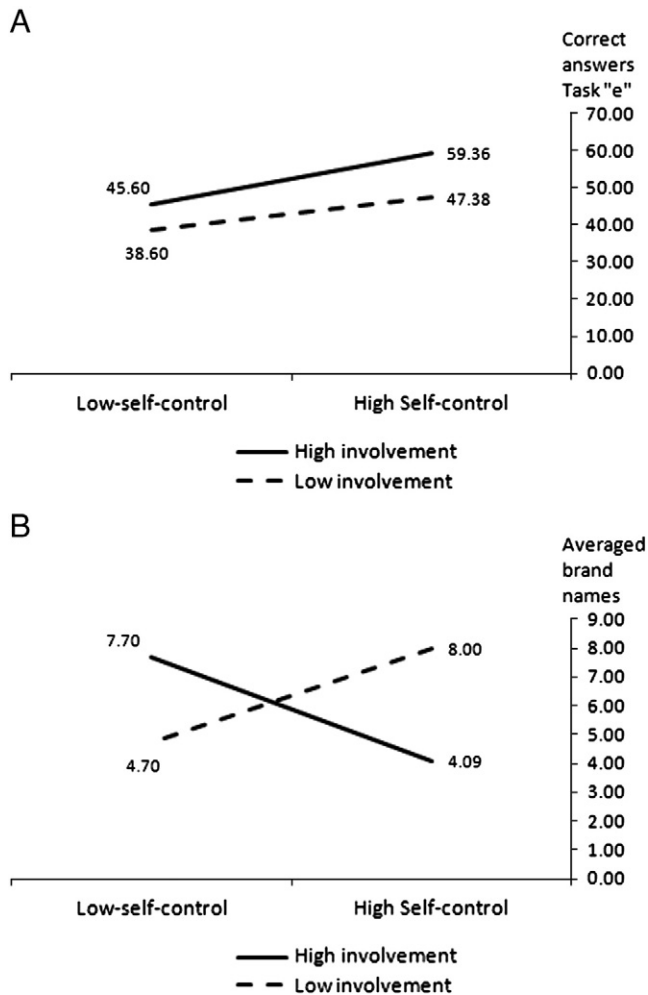
A

B

Fig. 2. A: Performance under depletion in "e" task (task 1) as a function of involvement and self-control (Study 2). B: Performance under depletion in brand recognition task (task 2) as a function of involvement and self-control (Study 2).

Conclusions

Study 2 demonstrates that in the first resource-demanding task, high involvement combined with high self-control enhanced performance. However, when participants were introduced to a second, unanticipated, resource-demanding task, the sprinter effect occurred. Participants who were high in only one of the two drivers—self-control or involvement—performed better than participants who were low in both drivers and more importantly better than participants who were high in both drivers. This effect however occurred only when participants were depleted.[8]

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[8] It is important to note that performance was pre-tested for participants who were not depleted ($n=61$, $M_{age}=36$). As expected the sprinter effect did not occur, and self-control or involvement enhances performance on both the first and the second tasks. Performance in the "e" task was significantly better among high-self-control participants compared with low-self-control participants ($F(1,54)=6.96$, $p<.05$) and was significantly better among high-involvement participants compared with low-involvement participants ($F(1,54)=10.71$, $p<.05$). The same two main effects were also found in terms of performance in the second task. Thus, performance improved as a function of high levels of self-control ($F(1,57)=3.25$, $p<.07$) and high levels of involvement ($F(1,57)=4.69$, $p<.05$).

One shortcoming of Study 2 is that recognizing brand names is a task less frequently conducted by consumers. Hence, in the next study we employ a performance measure which is more common in consumer behavior context.

Of most importance, the findings of Study 2 might lead to a somewhat dangerous conclusion that when consumers need to perform under depleted states, the worst thing for them is having extreme eagerness to accomplish the tasks at hand. In other words, possessing high dispositional self-control and enhanced situational involvement can work against consumers. However, it is obvious this is not always the case. In the next two studies, we sought to identify the circumstances under which the combination of high involvement and high self-control enhances performance, even in a state of depleted resources.

Study 3—Sprint vs. marathon mindsets and the willingness to spend impulsively

Following past research on the allocation of resources in a series of tasks (Muraven et al., 2006), we suggest that when consumers are informed of impending tasks, the sprinter effect will diminish. That is, all consumers, particularly those with high involvement and high self control, will apply a resource conservation strategy.

In Study 3, we repeated the general procedure used in Study 2 with one major exception: some of the participants in the study were informed of the total number of tasks at the outset, whereas others were presented with each task as they went along and received no advance information on the outline of the study. Informing participants in advance was expected to shift participants' mindsets from "sprint" to "marathon".

In addition, in Study 3, a different dependent measure was used: the likelihood to buy impulsively while waiting in line for the cashier. This measure resembles real-life decisions, as demonstrated in the field study (Study 1). We intended to replicate the drop in performance under a sprint mindset and the turnover in performance under a marathon mindset. Hence, we hypothesized that under a marathon mindset, highly involved individuals with high self-control, although depleted, would perform well in both the initial and successive tasks.

Method

Participants

One hundred seventy-five participants ($M_{age}=32$) volunteered to complete an online survey and in return were included in a raffle for an amazon.com gift certificate worth $25.

Procedure and measures

Participants first completed the DSC self-control measure (as in Study 2) and were then randomly introduced to the sprint or marathon manipulation. Next, they were randomly assigned to the involvement manipulation and were asked to perform the resource-depleting task. As in Study 2, all participants underwent the depletion manipulation. Finally, all participants were asked to complete a task measuring their willingness to spend impulsively.

Marathon vs. sprint mindset. Under the marathon mindset condition, participants were given a brief introduction outlining the tasks before the experiment began. The order and general nature of the tasks were described in the following manner:

"First, we would like to learn a little about you, the way you generally behave and make decisions using a self-report questionnaire. Next you will be instructed to perform two tasks. We will measure your response to visual stimuli using a number-matrix task. This task may require accuracy and persistence. Finally, we will measure your decision-making processes regarding consumption of different products, including hedonic ones, using an everyday scenario. We ask that you complete all the above as best you can."

Under the sprint mindset condition, participants were directly introduced to the first task and were not informed in advance of the rest of the experiment, similar to the procedure in Study 2.

Resource-depleting task (task 1). All participants underwent the resource-depleting manipulation. The resource-depletion task was similar to the task used in Study 2, but instead of following different rules of reading comprehension, participants were asked to circle specific numbers in matrices of numbers (Cacioppo & Petty, 1982). In the first part of the task, participants were instructed to apply a rule, i.e., "circle each 1, 5, and 7" on as many matrices as they can, and in the second part, which consisted of a new set of matrices they were asked to follow a new rule requiring inhibition of the previous rule, i.e., "circle all occurrences of 3, every other 4, and the number 6 only when preceded by a 7".[9]

It is important to note that participants were informed they could stop at any point in time but should do their best to solve as much matrices as they can.

Situational involvement. The instructions for the number-circling task included the involvement manipulation of stated sample size, similar to that used in Study 2.

Willingness to spend impulsively (task 2). The final task was introduced through the following scenario: "Imagine that you are doing your weekend grocery shopping. You find everything you need at the store. Now you are waiting in line for the cashier. On the shelves near the cashier are some items on sale. None of them are on your shopping list. Indicate the probability you will buy each item."

Participants were given a list of 32 hedonic products (e.g., potato chips, soda, and chewing gum) and were asked to indicate the likelihood that they would buy each product on a scale from 0 ("I would certainly not buy it") to 100 ("I would certainly buy it").

Manipulation checks. At the end of the study, participants were asked to report the extent to which they thought their answers would have an impact on the survey's results, as a manipulation check for involvement.

Results

Manipulation checks

Involvement. Participants in the high-involvement condition reported believing they would have a greater impact on the survey's outcomes ($M=3.56$, $SD=1.01$) than did participants in the low-involvement condition ($M=3.25$, $SD=.94$, $t(173)= -2.01$, $p<.05$).

Resource depletion. All participants were assigned to the resource-depletion condition, which required overriding the first rule when performing the second part of the task. Participants reported significantly enhanced difficulty in overriding the first rule and following the second rule ($M=4.24$, $SD=.09$) compared to the mid-point of the scale ($M=3$, $t(175)=18.11$, $p<.05$).

Self-control. We used the same DSC measure as in Study 2 ($\alpha=.80$). Based on a median split, participants were designated as having high or low self-control.

Performance in a stream of tasks

We compared the performance in each self-regulating task as a function of the participants' mindset, involvement condition, and dispositional self-control level.

Resource-depleting task (task 1). In the first task we expected three simple effects. It was hypothesized that: (a) high-involvement participants would perform better than low-involvement participants; (b) high self-control participants would perform better than low self-control participants; and (c) participants under the sprint mindset would perform better than those under the marathon mindset, as evidence for the resource reservation strategy that the latter would adopt.

We conducted a 2 (high vs. low self-control) by 2 (high vs. low involvement) by 2 (marathon vs. sprint mindset) ANOVA analysis of performance in the number-circling task. As hypothesized, performance was better under the high-involvement condition ($M=56.86$, $SD=13.54$) than under the low-involvement condition ($M=49.95$, $SD=19.26$; $F(1,167)=11.99$, $p<.05$). High-self-control participants performed better on the number-circling task ($M=55.32$, $SD=15.15$) than low-self-control participants ($M=51.69$, $SD=18.37$). However, this effect was not found to be significant ($F(1,167)=1.65$, $p>.1$). As expected, participants under the sprint mindset condition performed better on the first task, ($M=55.48$, $SD=16.43$), than did participants under the marathon mindset condition ($M=49.9$, $SD=16.38$, $F(1,167)=7.84$, $p<.05$).

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[9] This task was pre-tested among 60 participants ($M_{age}=23$). One-half of the participants received the depleting instructions as outlined earlier, while the second half received the non-depleting instructions. In the non-depleting conditions, participants received the same instructions in both parts of the task and applied them to different matrices. Results confirmed that in the resource-depletion condition, the effort exerted to ignore the first rule in order to follow the second rule was greater ($M=3.13$, $SD=1.65$) than the effort exerted under the non-depletion condition ($M=1.93$, $SD=1.50$; $t(58)=-2.94$, $p<.05$).

Willingness to spend impulsively (task 2). We conducted a 2 (high vs. low self-control) by 2 (high vs. low involvement) by 2 (marathon vs. sprint mindset) ANOVA on the average probability of buying unplanned items. The analysis revealed a significant main effect of the mindset conditions. Depleted participants under a sprint mindset were willing to buy more ($M=5.65$, $SD=4.10$) than those under a marathon mindset ($M=2.97$, $SD=2.18$; $F(1,165)=16.25$, $p<.05$).

However, more importantly, the three-way interaction was found to be significant ($F(1,165)=4.83$, $p<.05$). In the sprint mindset condition, the depleted participants willing to buy the most were those with both high involvement and high self-control ($M=6.68$, $SD=5.13$), compared with those who had high involvement and low self-control ($M=4.75$, $SD=3.04$, $t(165)=2.71$, $p<.05$) or those with low involvement and high self-control ($M=4.38$, $SD=3.40$, $t(165)=2.08$, $p<.05$). This pattern of results is consistent with the findings of Studies 1 and 2 and demonstrates the drop in performance in the second task for participants who are highly motivated.

However, under the marathon mindset condition, the sprinter effect was diminished. The depleted participants willing to buy *the least* were those with high involvement and high self-control ($M=1.30$, $SD=.98$), compared with participants who had high involvement and low self-control ($M=3.12$, $SD=1.77$, $t(165)=-1.70$, $p=.09$) or those with low involvement and high self-control ($M=3.82$, $SD=1.66$, $t(165)=-1.89$, $p=.06$).

Fig. 3A and B presents the results of the willingness-to-buy task as a function of situational involvement, dispositional self-control, and mindset type.

Process measures. Since participants were given no time limitation on any of the tasks, the amount of time participants spent on each task, could serve as a proxy for effort. Findings on time spent on the tasks under each mindset further support the resource-reservation hypothesis. Participants in the sprint mindset condition who had high self-control and high involvement spent more time solving the matrix ($M=8.34$, $SD=4.14$) than did high-involvement, high-self-control participants in the marathon mindset condition ($M=6.13$, $SD=3.14$, $t(48)=2.05$, $p<.05$). However, in the second task, high-involvement, high-self-control participants under a sprint mindset spent significantly less time on the task ($M=1.73$, $SD=.48$) than did those under a marathon mindset ($M=2.04$, $SD=.60$, $t(49)=2.03$, $p<.05$). These results suggest that under the marathon condition participants conserved their resources in the first task and thus did not perform as best as they could, whereas in the second task, they exerted more effort than participants under a sprint mindset.

Conclusions

Study 3 confirms that a marathon mindset overturns the sprinter effect. In the marathon condition participants did not perform as best as they could in the first task, thus giving evidence to their effort to conserve their resources for later tasks (Muraven et al., 2006). As a result, depleted but highly involved and high self-controlled participants acting under the marathon mindset
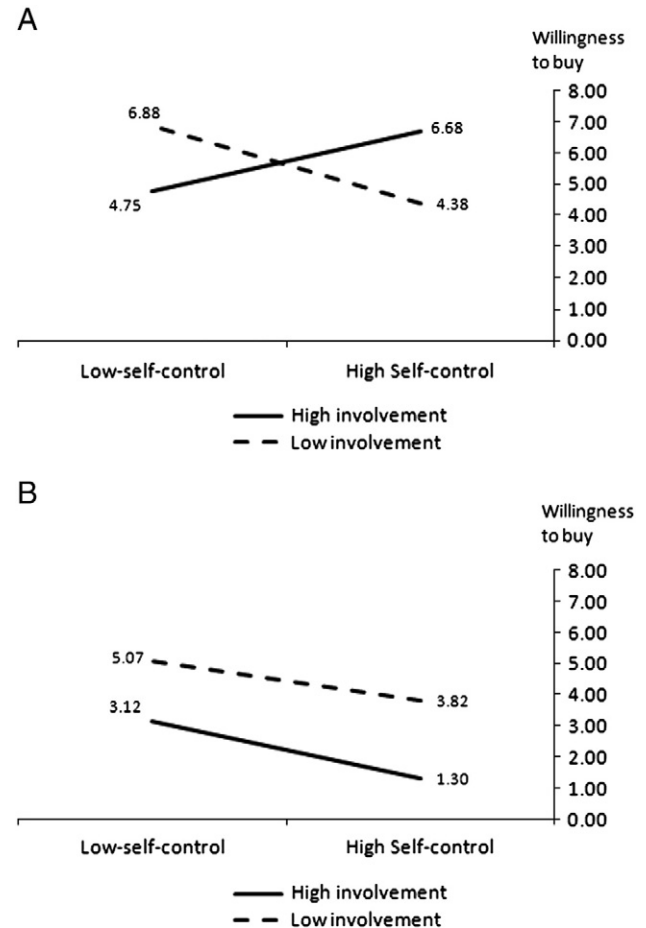

Fig. 3. A: Performance under depletion as a function of involvement, and self-control for participants' in a sprint mindset (Study 3). B: Performance under depletion as a function of involvement and self-control for participants' in a marathon mindset (Study 3).

performed significantly better on a subsequent task, compared with depleted participants acting under the sprint mindset. Thus, Study 3 demonstrates the important role of planning ahead when it comes to a sequence of self-control-demanding tasks.

However, the third study has two limitations: First, it did not test whether consumers reserve these resources intentionally or whether this is an automatic process of highly involved and self-controlled individuals. It is important to learn whether consumers apply the resource allocation strategy consciously or whether this is a non-conscious process. The more self-aware and controlled the process, the easier it could be for marketers to evoke this behavior, easily signaling to consumers when it is beneficial for them to apply it. Second, Study 3 tested the effect only among depleted participants. In order to show that this strategy is activated when individuals feel that their resources may become limited, it is important to show that the strategy is activated only among those who are performing a depleting task. The fourth study, therefore, aims to uncover the intentional mechanism of the sprint and marathon mindsets, and to show that the marathon mindset is adopted only when one is facing a depleting task. In addition, in Study 4 we test actual consumption behavior rather than intentions to consume.

Study 4—Sprint vs. marathon mindsets and consumption of snacks

In Study 4 we wished to measure the intentional mechanism of the resource allocation process, by examining both actual behavior and self-reported measures. We looked only at our target group—high-self-control, highly involved individuals—and manipulated depletion states (i.e. depleted versus non-depleted) and mindsets (i.e. sprint versus marathon) to measure actual performance in two tasks.

Method

Participants

Seventy-one participants ($M_{age}=26$) volunteered to participate in a lab study in return for $8 payment each.

Procedure and measures

Participants entered the lab separately; all instructions were read from the computer screen. Participants were told they were participating in a study on senses and performance. All participants first underwent a manipulation to induce a state of high self-control and were then randomly introduced to the sprinter or marathon manipulation. Next, they were all assigned to the high-involvement manipulation and were presented with the first task. Unlike in the previous studies, participants were randomly assigned to either a depletion or a non-depletion condition. Finally, all participants were given the second task, which was to taste chocolate and salty puffs under the pretense of a sensory test. The amount of food consumed served as the dependent measure in this second task.

Self-control manipulation. In a procedure similar to that employed by vanDellen and Hoyle (2010), participants were asked to write about a recent event in which they had successfully activated high self-control, such as overcoming temptations or completing an unpleasant assignment on time.

Situational involvement. All participants underwent the sample size manipulation, to induce high-involvement manipulation as in Studies 1–3.

Marathon vs. sprint mindset. As in Study 3, under the marathon mindset condition, participants were given a brief introduction outlining the tasks before the experiment began. The order and general nature of the tasks were described in the following manner:

> "This study examines different senses (such as touch and taste) and their effect on performance. You will be instructed to perform two tasks. You can stop at any given moment, but we ask that you perform each task as best as you can. The first task measures eye–hand performance; you will be asked to copy text as precisely as you can. The second task measures sensory taste; you will be asked to taste and evaluate different snacks."

Under the sprint mindset condition, participants were told that they were about to perform a task measuring eye–hand

performance. Participants were told they could stop at any given moment but were requested to do the task as best as they could. After completing the first, typing task, participants were introduced to the second, unexpected snack-tasting task.

Resource-depleting task (task 1). Based on past research procedures (Muraven, Tice, & Baumeister, 1998; Muraven et al., 2006), participants were given a persistence task in which they were instructed to retype a short paragraph that appeared on the computer screen as quickly and as precisely as they could. Participants could not see what they typed, although the computer recorded all keystrokes. The computer randomly assigned participants to one of two conditions. In the depletion condition, participants were instructed to type everything apart from the letter "e". Specifically, they were instructed to leave a blank space whenever the letter "e" appeared. Following such a rule requires overriding one's natural inclination to type every letter and therefore should require self-control (Rieger, 2004). In the non-depletion condition participants were instructed to type all letters exactly as they appeared on the screen.

Process measure. To test whether participants intentionally applied a resource reservation strategy, we asked participants to report, immediately after completing the first task, to what extent they left available resources for possible upcoming tasks, on a 7-point scale ranging from _not at all_ to _very much_.

Snack tasting task (task 2). Participants were told that the task before them was a taste sensory task involving sweet and salty snacks. Participants were presented with bowls of salty and of sweet snacks (i.e. salty puffs and chocolate) and were instructed to taste the snacks and report to what extent each food item was sweet or salty. Participants were explicitly told that they were not obligated to taste both snacks but that they could eat as much as they wanted. At the end of the task, they were thanked and debriefed and received their payment for participation. After participants left the lab, the experimenter counted the number of chocolate and salty puff pieces remaining in the bowls.

Manipulation checks. (a) _Self control_: As a manipulation check of the self-control manipulation, participants completed a short version of the DSC scale (Ein-Gar et al., 2008) consisting of four items: (1) It is important for me to finish all of my tasks on time even if I do not feel like doing them; (2) People can trust me to stay on schedule even if I am busy and under a lot of pressure; (3) I often act without thinking through all of the alternatives; (4) People say I often make up my mind without thinking things through (the last two items were reverse-scored). (b) _Situational involvement_: As a manipulation check of the high involvement condition, in the end of the second task, participants were asked to indicate on a scale ranging from 1(_not at all_) to 7 (_very much_) the extent to which they were motivated to complete the survey. (c) _Resource depletion_: As a manipulation check of resource depletion, after typing the paragraph, participants were asked to indicate on a scale ranging from 1 (_not at all_) to 7 (_very much_) their response to the

following question: "How much were you fighting against an urge on this task?"

Results

Manipulation checks

Self control. To confirm that indeed high levels of self-control were induced, we compared the mean of the shortened DSC scale that participants completed at the end of the study ($\alpha = .60$) to the mid-scale value. As expected, participants reported a mean score that was significantly higher ($M = 4.05$, $SD = .65$) than the mid-scale value ($M = 3$, $t(70) = 13.70$, $p < .001$).

Situational involvement. As expected, participants reported they were highly motivated to complete the survey ($M = 4.94$, $SD = 1.25$). This score was significantly higher than the mid-scale value ($M = 4$, $t(70) = 6.35$, $p < .05$).

Resource depletion. In the first task, participants under the resource-depletion condition were instructed to follow a rule that called for overriding one's natural tendency (i.e. typing all the letters expect for the letter 'e'). To test whether following the instructions in the depletion condition differed from the non-depletion condition (i.e. typing all the letters) we conducted a between-subjects *t*-test. Results indicated that those under the depletion condition reported greater difficulty in following the task instructions ($M = 3.23$, $SD = 1.91$) compared with those under the non-depletion condition ($M = 2.00$, $SD = 1.51$; $t(69) = 3.00$, $p < .05$).

Performance. We hypothesized that in the first task, participants under the sprint mindset would persist more and therefore type more text than would participants under the marathon mindset. In addition, and following past research, we hypothesized that participants in the non-depleting task would perform better and type more text than those in the depleting task. In the second task, we hypothesized that those who had initially undergone a non-depleting task would perform the second task better, that is, eat fewer snacks, than would those who had initially performed a depleting task. However, and in line with the findings of Study 3, we hypothesized that those under the marathon mindset would overcome the temptation for snacks and would eat less than would participants under the sprint mindset.

The dependent measure was the number of letters participants typed. An ANOVA of the maximum number of letters as a function of mindset condition and resource depletion condition revealed two main effects. As expected, participants under the sprint mindset condition typed more letters ($M = 3136.06$, $SD = 1118.39$) than did those under the marathon mindset condition ($M = 2442.97$, $SD = 1636.74$; $F(1,67) = 4.40$, $p < .05$). Moreover, and as expected, participants under the resource depletion condition typed fewer letters ($M = 2472.14$, $SD = 1404.11$) than did those who were not depleted ($M = 3280.83$, $SD = 1424.71$). However, this effect was found to be marginally significant ($F(1,67) = 3.73$, $p = .07$).

Amount of snacks consumed (task 2). The dependent measure was the total number of snack units (sweet and salty) that participants ate. An ANOVA of the amount of snacks as a function of mindset condition and resource depletion condition revealed two main effects. Contrary to the findings for task 1, those under the sprint mindset ate significantly more snacks ($M = 2.47$, $SD = 1.19$) than did those under the marathon mindset ($M = 2.01$, $SD = .91$; $F(1,67) = 3.74$, $p < .05$). Consistent with the findings for task 1, those who were depleted ate more snacks ($M = 2.51$, $SD = 1.31$) than did those who were not depleted ($M = 1.97$, $SD = .71$; $F(1,67) = 5.18$, $p < .05$).

Process measures. An ANOVA of the process measure of whether participants reported reserving resources for possible later tasks as a function of mindset condition and resource depletion condition revealed a significant main effect of the type of mindset. After completing the first task, those under the marathon mindset reported reserving more resources ($M = 4.28$, $SD = 1.41$) than did those under the sprint mindset ($M = 3.43$, $SD = 1.91$; $F(1,67) = 4.45$, $p < .05$).

These findings suggest that when informed about upcoming tasks, highly involved, highly self-controlled participants intentionally reserved resources for later tasks, and as a result on one hand reduced performance in the initial task but, on the other hand, were able to perform well in the second task, even when depleted.

General discussion

The current research demonstrates that, unexpectedly, consumers who are highly involved and high in dispositional self-control exhibit a drop in performance in the second of two consecutive resource-demanding tasks. We argue that pre-knowledge, or lack thereof, of an impending sequence of tasks, and the mindset—"marathon" or "sprint"—that the consumer experiences as a consequence, are the underlying mechanisms driving performance.

We show that in a sequence of two tasks, one expected and the other not, the "sprinter effect" takes place, wherein participants with high self-control and high involvement exert extensive resources in the first task. This exertion depletes their resources and thus impairs performance in the second task.

In Study 1, we showed that depleted, highly self-controlled, highly involved shoppers were more likely to impulsively purchase items while waiting in line for the cashier than were shoppers who were less involved or low in self-control. In Study 2, we replicated the effect in a lab setting. We showed that while performance in an initial resource-demanding task was high for those with high involvement and high self-control, performance in the subsequent task dropped severely. In Study 3, we accounted for the underlying process and showed that the drop in performance occurs only when the second task is not expected. When the second task is expected, highly motivated participants hold back some of their resources in an initial task in order to reserve them for the second task and thus avoid the drop in performance. In Study 4, we further tested the underlying process by demonstrating its motivational aspect. We showed that only those who were informed of upcoming tasks (marathon mindset condition) and who underwent a depleting

initial task reported reserving their resources for the subsequent task and thus reduced performance in the initial task. Thus, in the second task in Study 4—a food consumption task—those under the marathon mindset condition, but not the sprint mindset condition, consumed less of the tempting food.

We attributed the sprinter effect to the carryover influence of self-control and involvement on performance in a stream of two self-regulating tasks, without specifying the relations between the tasks. It may be argued that a drop in performance occurs only when the depleting task and the subsequent task are unrelated. Past research has shown that resource-depletion can be reduced. By practicing repeated exercises, individuals can improve their self-control (Muraven, Baumeister, & Tice, 1999). Hence, it may be argued that if the depleting task and subsequent task are from the same domain, individuals are able to improve their performance from the first to the second task. This improved ability may override the sprinter effect. In Studies 2, 3, and 4, the sequential tasks were independent in terms of their content. For example, in Study 4 the first task was to retype a given text, whereas the second task was to consume chocolate and salty puffs. In the first study, however, there was a strong association between the tasks. The first task was carrying out one's grocery shopping, which involves selecting products from the store shelves. The second task was to decide whether or not to buy products located near the cash register while waiting in line. Hence, we have demonstrated the occurrence of the sprinter effect when the tasks are either related (Study 1) or unrelated (Studies 2–4), and we propose that this phenomenon takes place regardless of task-relatedness. We reason that even with the potential for learning and improving from one task to the other, consumers who are highly involved and high in self-control will experience the sprinter effect as long as both tasks require resisting temptations and expending personal resources and as long as the second task is unplanned.

The licensing effect could be considered as a possible alternative explanation for the sprinter effect. The licensing effect operates by providing a boost in the relevant self-concept, which increases the preference for a hedonic choice by dampening the negative self-attributions associated with such a choice. This suggests that when the prior task generates a license, an increased preference for a hedonic option should be observed (Khan & Dhar, 2006). If indeed the licensing effect was the driver of the drop in performance under the sprint mindset, that is, working hard on the first task generated the license for the drop in performance in the subsequent task, then shifting one's mindset to a marathon mindset should not have eliminated the effect. Moreover, in each study we carried out involvement manipulation checks at the end of each task. If the licensing effect had occurred, we would expect a drop in involvement in the second task. However, our findings show that those under the high involvement condition did not experience a drop in involvement after completing the first task. Finally, it is questionable whether the second task in Study 2 (recognizing brand names) is hedonic. This task measures more persistence than self-rewarding, hedonic actions. Therefore, the licensing effect might not account for the drop in performance in this second task.

A somewhat similar construct to the sprint versus marathon mindset is the "get ready mindset" (Bosmans, Pieters, & Baumgartner, 2010). According to the "get ready mindset", consumers who anticipate having to perform a difficult task in the future may gear up and start working hard on a current task. This is true mainly for situations in which consumers do not keep tasks separate due to situational contingencies or personal characteristics. Thus, findings from Bosmans et al.'s (2010) Study 4 may suggest that under the marathon mindset, the resource reservation strategy is applied only when the two tasks are perceived as dissimilar. An interesting question that may arise both from our work and from that of Bosmans and colleagues is, what happens to performance in the second task when the two tasks are perceived as similar? Would the "get ready mindset", which promotes performance in the first task, result in a drop in performance in the second task, as occurs in the sprint mindset?

Taken together, Studies 1–4 have demonstrated the occurrence of the sprinter effect for individuals who are highly motivated to perform the tasks at hand. These studies further show how to overcome this effect through the adoption of a marathon mindset, before engaging in any of the tasks. However, in many cases, individuals are not informed *a priori* about the stream of tasks and thus lack the ability to debias the sprinter effect by using a resource allocation strategy. In other words, life is full of surprises, and as we demonstrated in our opening example, consumers encounter many situations in which they anticipate the first task, but not the second. This is true even for common situations such as one's weekly grocery shopping. It is therefore of great relevance to look at situations in which consumers are not aware of the upcoming tasks and hence depletion is a given. Future research should test whether people's expectancy regarding the nature of the second task— even if the information is provided after depletion—could serve to mediate the effect. Specifically, it would be interesting to test whether after completion of the initial task, receiving information about the unexpected upcoming task—e.g., information on whether it is easy or challenging—could decrease or enhance one's performance.

Three additional interesting questions arise from our findings. First, are there drivers, apart from task involvement and self-control, that may yield an effect similar to the "sprinter effect"? For example, is it possible that glucose levels in the blood combined with humor might influence performance in the same way? Second, do these drivers always lead to non-desirable outcomes? For example, imagine a young man very high in self-control on a first date. He is extremely involved in the situation and, as a result, experiences depletion after trying to avoid eating too much fattening food during dinner. After leaving the restaurant with his date, he spontaneously buys her an overpriced flower, something he would never dare to do on a first date if he were not depleted. Third, are there circumstances under which decreasing these drives might lead to more rational consumption and balanced spending decisions? For example, to convince consumers to purchase high-involvement products such as health products, would de-motivating consumers (rather than increasing their involvement) help consumers behave more healthfully?

This research suggests a possible method to debias the sprinter effect. We hypothesized that the sprinter effect would occur only

when individuals did not plan their actions in advance nor monitor the extent of efforts allocated for each task. As proposed by Muraven et al. (2006), conservation of resources seems to help avoid depletion. Therefore, prior knowledge of multiple tasks would override the sprinter effect, and highly involved consumers with high self-control would allocate their resources in the most effective way, ensuring sufficient resources for successful completion of all tasks. The results of Studies 3 and 4 indicate that when planning ahead, participants in a marathon mindset who were highly involved and high in self-control performed better than all other participants in the subsequent task (i.e., expressed less willingness to spend money on unplanned grocery items or ate fewer snacks).

This debiasing mechanism has managerial and practical implications in various marketing contexts, organizational settings, and even the academic world. For example, before entering large stores, consumers could be offered a map of the store indicating where various products are located (such as the maps distributed at IKEA). Such maps might encourage consumers to plan their shopping in advance and consequently adopt a marathon mindset. The marathon mindset would enable shoppers to avoid incurring unexpected expenses towards the end of their shopping trip. Going online to look at the store's homepage to find out about sales before coming to the store, thus considering which items should be included in one's shopping list, is also a way to adopt a marathon mindset, since by doing so, one takes into account the "unexpected" sales offered at the last minute—near the cashier. From the store management perspective, adopting a marathon mindset may cause a drop in the extent of unplanned purchases, which is part of the "bread and butter" of store income. However, in the long run, marathon-mindset consumers might suffer less from feelings of depletion, enjoy their shopping experience much more, and thus increase their overall loyalty to the store. Similarly, in organizations, management may encourage a marathon mindset by giving employees a roadmap of tasks and projects required annually rather than quarterly. Before tenure, young scholars could be advised to adopt a marathon mindset and look beyond the five-year deadline for tenure to avoid exhausting their resources in pursuit of publication.

Additional managerial implications may derive from the field study (Study 1), which draws attention to three interesting themes: First, in the attention regulation task, shoppers were instructed to disregard other shoppers' choices, leading to an effect on shoppers' resource-depletion state and consequently on their subsequent impulse purchases. In line with this finding, it is interesting to examine other attention allocation tasks frequently used by shoppers, such as information screening and promotion resistance. For example, shoppers who are not "bargain hunters" may, at times, feel overwhelmed by stores' promotion efforts and may try to resist them (e.g., sales, price reductions, and handouts). One method of resistance is screening out or ignoring some of this information. Just as our shoppers tried to avoid looking at other shoppers' carts, these shoppers try to avoid looking at ads, campaign messages, and sales notifications. Could it be that when shopping in a store featuring extensive promotion campaigns, consumers are more depleted by the immense resistance to being persuaded by promotion efforts and as a result spend more on non-promoted items?

Second, consumers may experience depletion even when they do not exercise attention regulation. Planned shopping by itself may be depleting (without any additional tasks like avoiding looking in other's shopping baskets). Future research should explore whether consumers who pre-plan with a shopping list are more likely to end up experiencing the sprinter effect than consumers whose total shopping trip is less planned.

Third, results on shoppers' level of enjoyment may suggest interesting "boomerang" implications. On one hand, shoppers were easily induced into a depleted state and consequently increased their impulse spending in stores. On the other hand, findings also show that depleted shoppers reported less enjoyment of their overall shopping experience. The latter finding suggests that creating a shopping atmosphere that exacerbates resource depletion—and, as a result, increases impulse purchases—might be counterproductive for the store. Shoppers who buy more impulsively may enjoy their shopping less and with time might refrain from returning to the store. Ultimately, this might suggest that the best course of action may be to give consumers the tools they need for constructive behavior. Educating consumers about the outcomes of a sprint versus marathon mindset is an example of a tool that empowers consumers and helps them control, rather than be controlled by, the purchase situation.

Acknowledgments

Appendix A. The Dispositional Self-Control scale (DSC)—short version

Adapted from: Ein-Gar D, Sagiv L and Goldenberg J. (2008), "Taking Control: An Integrated Model of Dispositional Self-Control and Measure," *Advances in Consumer Research*, 35, 542–50.

1. I usually succeed in overcoming temptations.
2. Usually, when something tempts me, I manage to withstand it.
3. Even when something exciting happens to me, I do not get carried away by my feelings or act without thinking.
4. Even when stressed, most of the decisions I make are considered and calculated.
5. I rarely act impulsively.
6. I am able to work effectively toward long-term goals, while resisting temptations along the way.
7. People can trust me to stay on schedule even if I am busy and under a lot of pressure.
8. It is important for me to finish all of my tasks on time, even if I do not feel like doing them.
9. I never delay work that needs to be done, even if I am busy.

10. I tend to finish assignments right away, even if they are unpleasant.

11. I do many things on the spur of the moment. (*)

12. People say I often make up my mind without thinking things through. (*)

13. I often act without thinking through all of the alternatives. (*)

14. I often make spontaneous and rather hasty decisions. (*)

15. I tend to postpone completing unpleasant tasks. (*)

16. When I need to run errands, I usually put them off until the last minute. (*)

17. I sometimes postpone tasks that I have to do until it is almost too late. (*)

Items marked * are reverse coded.

Appendix B. Additional tests and pre-tests

1. The positive effect of each driver was also confirmed in two preliminary tests. The first pre-test ($n=236$; $M_{age}=34$) confirmed that situational involvement enhances performance in two successive self-regulating tasks (task 1 and task 2) when involvement is induced *prior* to the two tasks ($F_{task1}(1,232)=16.49$; $F_{task2}(1,232)=28.99$; both $p<.05$). In the second pre-test ($n=85$; $M_{age}=35$) self-control enhanced performance in two successive self-regulating tasks. Participants with high self-control performed better than participants low in self-control in both task 1 and task 2 ($F_{task1}(1,84)=5.48$; $F_{task2}(1,83)=5.21$; both $p<.05$).

2. In the first pre-test participants ($n=91$, $M_{age}=34$) reported on a scale of 1 (not at all) to 5 (very much), that upon entering a store before starting their shopping, they do not consider ($M=1.70$, $SD=1.05$) or plan ahead ($M=1.66$, $SD=1.02$) to buy any products displayed on the shelves near the cashier. These reports were found to be significantly lower than the mid-scale value of 3 ($t_{consider}(90)=-11.78$, $t_{plan\ ahead}(90)=-12.48$, both $p<.001$). In the second pre-test participants reported on a 5-point scale ranging from 1 (not at all) to 5 (very much) that such unplanned purchases are a waste of money ($M=3.60$, $SD=1.07$; $t(90)=5.37$, $p<.01$), something one should avoid ($M=3.77$, $SD=1.21$; $t(90)=6.05$, $p<.01$), an expression of low self-control ($M=3.34$, $SD=1.25$; $t(90)=2.6$, $p<.01$), not a good bargain (reverse coded, $M=2.02$, $SD=.98$; $t(90)=-9.5$, $p<.01$), not smart behavior (reverse coded, $M=1.93$, $SD=.92$; $t(90)=11.09$, $p<.01$), and a self-indulgent act ($M=3.67$, $SD=1.00$; $t(90)=6.39$, $p<.01$). All reports were compared to the mid-scale value of 3.

3. This manipulation was also pre-tested among 21 shoppers. As expected, under the high-involvement condition, shoppers reported following instructions more seriously ($M=6.63$, $SD=.67$) than shoppers in the low-involvement condition ($M=4.7$, $SD=2.31$; $t(19)=-2.66$, $p<.05$). They also reported feeling they had a greater influence on the survey's results ($M=5.72$, $SD=1.10$) than shoppers in the low-involvement condition ($M=3.5$, $SD=2.06$; $t(19)=-3.21$, $p<.05$).

4. There was no difference in reported enjoyment between high- versus low-self-control shoppers ($t(17)=-.92$, $p>.1$) or between high- or low-involvement shoppers ($t(17)=-.52$,

$p>.1$). That is, as reported, only depleted shoppers found the shopping experience less enjoyable than did non-depleted shoppers.

5. This task was pre-tested among 85 participants ($M_{age}=35$). One-half of the participants received the depleting instructions as outlined above, while the second half received non-depleting instructions. In the non-depleting condition, participants received the same instructions in both parts of the task and applied them to different text paragraphs. Participants in the resource-depletion condition, which required overriding the first rule when performing the second task, reported greater difficulty in following the second rule ($M=3.45$, $SD=1.13$) than did those in the non-depleting task ($M=2.28$, $SD=1.05$, $t(83)=-4.95$, $p<.05$).

6. We carried out an additional repeated-measures analysis on the standardized scores of performance in the first and second tasks as a function of situational involvement and dispositional self-control under the resource-depletion condition, which indicated a significant three-way interaction effect ($F(1,40)=14.33$, $p<.05$), further emphasizing the turnover effect from high performance in task 1 to low performance in task 2.

7. It is important to note that performance was pre-tested for participants who were not depleted ($n=61$, $M_{age}=36$). As expected the sprinter effect did not occur, self-control or involvement enhance performance on both the first and the second task. Performance in the "e" task was significantly better among high-self-control participants compared with low-self-control participants ($F(1,54)=6.96$, $p<.05$) and was significantly better among high-involvement participants compared with low-involvement participants ($F(1,54)=10.71$, $p<.05$). The same two main effects were also found in terms of performance in the second task. Thus, performance improved as a function of high levels of self-control ($F(1,57)=3.25$, $p<.07$) and high levels of involvement ($F(1,57)=4.69$, $p<.05$).

8. This task was pre-tested among 60 participants ($M_{age}=23$). One-half of the participants received the depleting instructions as outlined above, while the second half received the non-depleting instructions. In the non-depleting conditions, participants received the same instructions in both parts of the task and applied them to different matrices. Results confirmed that in the resource-depletion condition, the effort exerted to ignore the first rule in order to follow the second rule was greater ($M=3.13$, $SD=1.65$) than the effort exerted under the non-depletion condition ($M=1.93$, $SD=1.50$; $t(58)=-2.94$, $p<.05$).

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