Response Inhibition and Interference Suppression in Restrained Eating

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Compared to unrestrained eaters (URE), restrained eaters (RE) more often show self-control deficits in their responses to food cues. Deficits in inhibition processes for RE may contribute to negative food intake control outcomes for RE compared to URE. Previous research has focused on response inhibition differences between the two groups, but not interference suppression differences. This study examined specific inhibition processes in RE and URE using three computerized behavioral tasks – Food Stroop task, Stroop task, and Simon task. Significant group differences were found on the Stroop task, but not on the Food Stroop task or Simon task. Compared to URE, RE have inhibition deficits in response inhibition, but no deficits in interference suppression. These findings clarify specific inhibition processes that differentially affect dietary intake for RE and URE, and more generally contribute to our knowledge of the role of cognitive processes in health behaviors.

Keywords: Response inhibition, Interference suppression, Dietary restraint, Stroop task, Simon task

Obesity and overweight are two salient health problems in industrialized countries (Katz et al., 2005). Weight status has multiple causes (e.g., environmental, social, and person-level factors), and individual differences in inhibition ability are thought to affect eating behavior and contribute to variations in weight loss treatment outcomes (Allom, Mullan, & Hagger, 2015; Hofmann, Rauch, & Gawronski, 2007; Jansen et al., 2009). Although inhibitory control is recognized as an important factor in dietary intake, inhibition is a complex construct that is currently being refined by researchers. Inhibition is defined broadly as an executive function that terminates or reduces a response to a perceptual or behavioral cue (Jurado & Rosseli, 2007). Recent approaches to inhibition have defined the construct as an attentional control process that limits what environmental stimuli can affect goal-oriented behaviors (Hasher, Lustig, & Zacks, 2007) or the ability to control reactions in order to complete behaviors relevant to long term goals (Allom et al., 2015).

Another concept related to control of eating behaviors, impulsivity, is defined broadly as a failure to control behaviors (Jansen et al., 2009; Nederkoorn, Van Eijs, & Jansen, 2004). Like inhibition, impulsivity is a complex construct currently being refined by researchers. Multiple impulsivity scales exist that vary in their factor structure of the construct as a whole (Stanford et al., 2009). In addition, impulsive behaviors have been associated with failures in multiple specific inhibition processes including response inhibition, response interference, and motivational/decisional impulsiveness (Cyders & Coskunpinar, 2012; Stahil et al., 2014).

Researchers studying control of dietary intake developed the concept of dietary restraint as a way to address individual differences in eating behavior patterns. Dietary restraint scales act as a proxy measure of individual differences in inhibition and attention that were predicted to underlie patterns of eating behaviors. Studies using dietary restraint scales categorize people between two extremes: highly restrained eaters (RE) and unrestrained eaters (URE) (Herman & Polivy, 1980; Laessle, Tuschl,
Kotthaus, & Pirke, 1989; Williamson et al., 2007). As measured with the Revised Restraint Scale, RE are more likely than URE to report a history of dieting, to display attentional biases toward food cues, and to display disinhibited eating in the presence of palatable food. Herman and Polivy (1980) proposed that RE and URE differ in their ability to self-regulate behaviors after multiple instances of inhibiting responses to food cues. Specifically, RE are proposed to have more attention for food cues, and therefore must inhibit their response to these cues to control eating behavior more often than do URE; these repeated instances of inhibition responses to food cues are predicted to contribute to later disinhibited eating behavior (Herman & Polivy, 1980).

Because inhibition behaviors are enacted using multiple subtypes of control processes, it is likely that differences in control of eating behaviors are driven by differences in multiple types of inhibition. Two specific types of inhibition processes that may be involved in controlling eating behavior are response inhibition and interference suppression (Bunge, Dudukovic, Thamson, Vaidya, & Gabrieli, 2002). Multiple lines of research suggest that these are two distinct inhibition processes. Neuroimaging research suggests different brain areas of a broader self-control network are differentially activated for tasks corresponding to each of these types of inhibition (Blasi et al., 2006; Heatherton & Wagner, 2011; Hwang, Velanova, & Luna, 2010; Murray et al., 2014). Cognitive behavioral research also suggests that response inhibition and interference suppression represent separate control functions. For example, Nigg (2000) identified that response inhibition tasks such as Stroop tasks require participants to control distracting internal or external stimuli to complete a primary response. Other researchers state that Stroop tasks involve inhibiting habitual responses to cues to create a correct response (Simon & Berbaum, 1990; Liu, Banich, Jacobson, & Tanabe, 2004). In comparison, interference suppression tasks such as the Simon task involve inhibition of aspects of neutral stimuli that compete with current task goals (Simon & Berbaum, 1990; Mullane, Corkum, Klein, & McLaughlin, 2009). Simon tasks are not influenced by habituated responses to attentional cues; instead, the interference effect is driven by a stimulus–response conflict where individuals must identify the correct spatial response required for the task while inhibiting new spatial coding information about where the stimulus item is presently located (Hommel, 2011; MacLeod & MacDonald, 2000; Martin-Rhee & Bialystok, 2008).

Although response inhibition and interference suppression represent different types of inhibition, researchers in the health domain have only recently begun to focus on the role that interference suppression may play in determining eating behaviors in RE and URE (see Forestell, Lau, Gyurovski, Dickter, & Haque, 2012; Meule, Vögele, & Kübler, 2012). The theoretical explanations regarding inhibition differences between RE and URE have most often been studied using response inhibition tasks, including Stroop tasks and modified Emotional Food Stroop tasks (Brooks, Prince, Stahl, Campbell, & Treasure, 2011; Dobson & Dozois, 2004). Food Stroop tasks use neutral and food related words as stimuli, and participants with attentional biases toward food cues have slower reaction times when they name colors of food related words than neutral words (MacLeod & MacDonald, 2000; Pothos, Calitri, Tapper, Brunstrom, & Rogers, 2009). Two meta-analyses examining response inhibition in RE and URE reported that (a) RE exhibit more disinhibited eating behavior than URE in food cue reactivity tasks, (b) significant inhibition deficits in RE are not reliably found in responses to Food Stroop tasks (no significant Food Stroop effects or a small effect size), and (c) significant inhibition deficits in RE are reliably found in general Stroop tasks (Brooks et al., 2011; Dobson & Dozois, 2004).

Despite the amount of research examining inhibition deficits in RE, there is still a need to clarify how specific types of inhibition processes involved in eating behaviors interact with levels of dietary restraint. Recent research emphasizes that people with deficits in one type of inhibition often have deficits in other types of inhibition (Lustig, Hasher, & Zacks, 2007), and diverse clinical populations defined by maladaptive behavioral control have distinctive patterns of inhibition deficits. Examining multiple types of inhibition within the same sample of RE and URE would clarify the relative importance of specific inhibition processes in controlling dietary intake behaviors and would also help explain some of the problems with translating basic research findings into applied health interventions. For example, past interventions for improving self-control of dietary intake targeted general response inhibition skills but recent studies have found that training cue specific response inhibition skills may be more effective at a behavioral level (Allom et al., 2015; Lawrence, Verbruggen, Morrison, Adams, & Chambers, 2015).

This study assessed if the self-reported differences in inhibition of eating behaviors between RE and URE are associated with deficits in general response inhibition alone or deficits in interference suppression as well. Our study assessed how RE and URE differ in response inhibition and interference suppression using three specific tasks: a Food Stroop task (cue specific response inhibition), a Stroop task (general response inhibition), and a Simon task (interference suppression). Comparing interference effects between RE and URE on these tasks contributes to current knowledge of inhibition, and identifies the inhibition processes that are involved in behavioral control of eating behaviors.

**Methods**

**Participants**

English-speaking women between 18 and 35 years of age attending college or graduate school in the Los Angeles area were recruited in 2014 and 2015 (mean age = 22.26 years, range = 18–32). Participation was restricted to women to control potential gender effects and due to the reported higher prevalence of restrained eating among women (Rand & Kulda, 1991). A total of 257 participants completed a composite health survey. URE and RE were then defined using an extreme groups design.
based on the study sample’s restraint score, rather than a median split (Laeslsle et al., 1989). Participants were defined as URE if their revised restraint scores were less than or equal to the cut-off score of 10 (N = 86, restraint score range 0–10, M = 7.14, SD = 2.55). Participants were defined as RE if their revised restraint scores were greater than or equal to the cut-off score of 17 (N = 57, restraint score range 17–30, M = 21.05, SD = 3.14). A subset of participants from the lower and upper quartile ranges returned to complete the behavioral tasks at time two (Final URE group: N = 33, restraint score range 0–10, M = 7.00, SD = 2.37; final RE group: N = 24, restraint score range 17–30, M = 20.80, \(SD = 3.16\)).

Materials

A composite survey was created using the Revised Restraint Scale, the Barratt Impulsiveness Scale (BIS, Stanford et al., 2009), and demographic questions. The Revised Restraint Scale consists of 10 questions about dieting history, dietary restraint, and inhibition, and has a range from 0 to 30 points (Herman & Polivy, 1980). The Revised Restraint Scale has been validated as a measure of restrained eating in both clinical populations (individuals with anorexia/bulimia) and subclinical populations (restrained eaters) (Laeslsle et al., 1989; Williamson et al., 2007) and has high test–retest reliability and internal consistency (r = .95, \(\alpha = .82\)) (Allison, Kalinsky, & Gorman, 1992). The BIS was included to examine impulsiveness, a construct that has been implicated in disinhibited overeating behaviors in RE (Jansen et al., 2009). The BIS assesses three underlying factors in impulsiveness: attentional impulsiveness, motor impulsiveness, and non-planning impulsiveness. The test has high internal validity (Cronbach’s \(\alpha = 0.82\) for undergraduates) (Patton & Stanford, 1995).

The materials for the Stroop and Food Stroop task were created by the researcher and pilot tested with a sample of college students. For the Stroop task, four color words (red, yellow, blue, and green) were used. For the Food Stroop task, food and neutral items were matched on mean number of letters, number of syllables, and written frequency based on Kucera-Francis word norms (MRC Psycholinguistic Database, 1987; MacLeod, 2005). Behavioral tasks were programmed and presented to participants using PsychoPy (Peirce, 2007) on a computer with Windows OS.

Procedure

Participants completed the composite health survey and were debriefed about the survey portion of the study in one session. Surveys were screened after completion and participants with missing data were contacted to provide the missing data. Participants in the upper and lower cut-offs on the Revised Restraint Scale were contacted to complete a second session where they completed the Stroop task, Food Stroop Task, and Simon Task.

At the second session, the Simon task and Stroop tasks were presented as blocks within the same experiment with the order of blocks counterbalanced across subjects. Participants read the instructions for each task at the start of each block and were required to perform above 80% accuracy on practice trials before they moved to the testing phase. For all participants, the Stroop and Food-Stroop tasks were presented in the same experimental block with 240 trials. The Stroop task consisted of a total of 80 trials with stimuli presented in randomized order; 75% of items were congruent and 25% of items were incongruent. The Stroop task presented color words (RED, BLUE, YELLOW, and GREEN) on a computer screen in 20-point font in different ink colors (red, blue, yellow, green). In the Food Stroop task, 20 highly palatable foods (CAKE, FRIES) and 20 neutral non-food nouns (BOOK, PRANK) were presented in 20-point font in different ink colors (red, blue, yellow, green). The Food-Stroop task consisted of a total of 160 trials with stimuli presented in randomized order. For both the Food Stroop and Stroop tasks, a fixation cross was presented on the screen for 1000 ms, followed by a target word that remained on the screen until the participant responded. Participants indicated the color of each word by pressing a correspondingly labeled key on the keyboard.

The Simon task procedure in this study followed the procedure used in previous studies (Bialystok, Craik, Klein, & Viswanathan, 2004). Individuals responded to colored boxes (red or blue) presented on either the left or right side of the computer screen. A key on the left side of the keyboard was pressed for red boxes; a key on the right side of the keyboard was pressed for blue boxes. Half of the trials were congruent (key press and presentation were on the same side); half were incongruent (key press and presentation were on opposite sides). The Simon task block began with a fixation cross presented for 1000 ms, followed by the presentation of the colored box that remained on the screen until participant response or 2000 ms passed. Congruent and incongruent trials were randomly presented in two trial blocks with 32 trials per block.

Responses and reaction times were recorded for each participant on the behavioral tasks, and the accuracy and distribution of reaction time data were calculated for each behavioral task (Stroop, Food Stroop, and Simon tasks). Incorrect responses and responses with extreme reaction times more than 3 SD from the individual’s mean for each task were removed before calculating each individual’s final reported mean reaction time per experimental condition.

Data Analyses

After defining the two dietary restraint groups (RE and URE), group differences in restraint score and BIS were compared using two t-tests. Error rates were examined by calculating percentage of incorrect responses for each task, and were compared between RE and URE using three independent sample t-tests. For the Stroop task and the Simon task, inhibition differences between RE and URE groups were examined using separate 2 \(\times\) 2 ANOVAs (dietary restraint: RE, URE \(\times\) Item Type: Congruent, Incongruent). For the Food Stroop task, differences were examined using a 2 \(\times\) 2 ANOVA (dietary restraint: RE, URE \(\times\) Item Type: Neutral, Food).

Results

Overall scores on the Revised Restraint Scale ranged from 0 to 30 (\(M = 13.07, SD = 5.66\); Median = 13), a distribution
of restraint scores similar to that reported in other studies using the Revised Restraint Scale (Rand & Kulda, 1991). The lower and upper quartile restraint groups identified using all participants (N = 257) were significantly different on the Revised Restraint Scale (RE N = 57, URE N = 86, t(141) = 18.27, p < .001, d = 4.94). The extreme restraint groups in the final sample were also significantly different (RE N = 23, URE N = 33, t(55) = 17.48, p < .001, d = 4.82). Overall BIS scores and subscale scores were analyzed for RE and URE in the final sample; there were no significant differences between groups on any of these measures (see Table 1).

Data from individual participants were used to calculate RE and URE group response accuracy, response time latencies and interference scores (absolute value of congruent response time – incongruent response time) for each behavioral task (Dobson & Dozois, 2004); these data are reported in Table 2. Stroop task and Simon task differences between RE and URE groups were examined using separate 2 x 2 mixed ANOVAs, with response time latencies for congruent and incongruent trials as the within-subjects factor and dietary restraint group as the between-subjects factor. Error rates were low, and although the RE group had higher error rates overall, these group differences were not statistically significant for any task (Stroop error rate t(55) = .42, p = .68; Simon error rate t(55) = 1.45, p = .16; Food Stroop error rate t(55) = 1.11, p = .27).

As predicted for the Stroop task, there was a significant main effect of trial type, F(1, 55) = 50.20, p < .001, η² = .48; congruent items (M = 676.30 ms, SD = 116.09 ms) were responded to more quickly than incongruent items (M = 732.99 ms, SD = 115.12 ms). For the Stroop task, there was also a significant main effect of dietary restraint group, F(1, 55) = 9.90, p < .003, η² = .15, with RE responding more quickly (M = 654.30 ms, SD = 79.65 ms) than URE (M = 741.30 ms, SD = 117.01 ms). Most important, in the Stroop task there was a significant interaction between dietary restraint group and trial type, F(1, 55) = 5.09, p = .028, η² = .09; Stroop effects were evident for both dietary restraint group but were larger for the RE (t(23) = 6.76, p < .001, d = 0.93) than URE group (t(32) = 3.51, p < .001, d = 0.33).

As predicted for the Simon task, there was a significant main effect of trial type, F(1, 55) = 22.51, p < .001, η² = 0.29; congruent items were responded to more quickly (M = 525.31 ms, SD = 114.11 ms) than incongruent items (M = 547.42 ms, SD = 119.83 ms). For the Simon task there was a significant main effect of dietary restraint group, F(1, 55) = 12.05, p < .001, η² = 0.18; RE responding more quickly (M = 481.80 ms, SD = 55.70 ms) than URE (M = 580.00 ms, SD = 130.00 ms). The interaction was not significant, F(1, 55) = 0.03.

Food Stroop task differences between RE and URE groups were examined using a 2 x 2 mixed ANOVA, with response time latencies for neutral and food item trials as the within-subjects factor and dietary restraint group as the between-subjects factor. As predicted for the Food Stroop task, there was a significant main effect of trial type, F(1, 55) = 6.41, p < .014, η² = 0.10; neutral items (M = 701.27 ms, SD = 112.79 ms) were responded to more quickly than food items (M = 709.43 ms, SD = 110.03 ms). For the Food Stroop task there was also a significant main effect of dietary restraint group, F(1, 55) = 9.44, p < .003, η² = 0.15; RE responding more quickly (M = 658.10 ms, SD = 84.16 ms) than URE (M = 742.20 ms, SD = 115.01 ms). The interaction was not significant, F(1, 55) = 0.24. As reported in other studies, response inhibition for food cues (measured with the Food Stroop task) was not reliably greater in RE than URE (Brooks et al., 2011; Dobson & Dozois, 2004).

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**Table 1**

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Mean Restraint Score and BIS Score by Factor for Restrained Eaters (RE) and Unrestrained Eaters (URE) (with SD’s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>RE (n = 24)</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>Restraint score</td>
<td>21.29 (3.46)</td>
</tr>
<tr>
<td>BIS</td>
<td></td>
</tr>
<tr>
<td>Attention</td>
<td>17.25 (3.39)</td>
</tr>
<tr>
<td>Motor</td>
<td>21.63 (3.62)</td>
</tr>
<tr>
<td>Non-planning</td>
<td>26.38 (11.23)</td>
</tr>
<tr>
<td>Overall BIS score</td>
<td>60.71 (8.29)</td>
</tr>
</tbody>
</table>

*Note: BIS Scale includes three impulsivity factors: attentional impulsiveness, motor impulsiveness, and non-planning impulsiveness. Standard deviations are in parentheses. Effect sizes for between-group comparisons using independent t-test are reported using Cohen’s d.*

**Table 2**

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Mean Reaction Times (with SD’s), Interference Scores, and Error Rate for Behavioral Tasks for Restrained Eaters (RE) and Unrestrained Eaters (URE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task</td>
<td>RE</td>
</tr>
<tr>
<td>---------</td>
<td>----</td>
</tr>
<tr>
<td>Stroop task</td>
<td></td>
</tr>
<tr>
<td>Stroop congruent</td>
<td>614.96 (85.61)</td>
</tr>
<tr>
<td>Stroop incongruent</td>
<td>693.62 (83.58)</td>
</tr>
<tr>
<td>Interference score</td>
<td>78.66</td>
</tr>
<tr>
<td>Error rate</td>
<td>2.90% (2.37%)</td>
</tr>
<tr>
<td>Simon task</td>
<td></td>
</tr>
<tr>
<td>Simon congruent</td>
<td>471.01 (61.04)</td>
</tr>
<tr>
<td>Simon incongruent</td>
<td>492.55 (55.54)</td>
</tr>
<tr>
<td>Interference score</td>
<td>21.54</td>
</tr>
<tr>
<td>Error rate</td>
<td>4.29% (3.46%)</td>
</tr>
<tr>
<td>Food Stroop task</td>
<td></td>
</tr>
<tr>
<td>Neutral items</td>
<td>655.03 (87.99)</td>
</tr>
<tr>
<td>Food items</td>
<td></td>
</tr>
<tr>
<td>Interference score</td>
<td>661.25 (81.35)</td>
</tr>
<tr>
<td>Error rate</td>
<td>6.22</td>
</tr>
</tbody>
</table>

*Note: Mean reaction times (RT) are reported in milliseconds. Standard deviations in milliseconds are included in parentheses. Interference scores are the absolute value of the difference in reaction time between congruent and incongruent items (or food and neutral items). Error rates are the percentage of incorrect responses for each task.*
Discussion

The primary goal of this study was to examine how RE and URE differ in general response inhibition and interference suppression. RE had significantly higher Stroop interference effects than URE but there were no significant between-group differences on the Simon task. These results provide evidence of response inhibition deficits in RE, but no deficits in interference suppression for RE. There were also no differences between RE and URE in Food Stroop interference effects, providing no evidence of food cue specific response inhibition deficits in RE. The absence of a significant difference between the RE and URE groups on the Simon task but a significant difference between the RE and URE groups on the Stroop task helps clarify the relative importance of specific inhibition processes involved in dietary intake.

Although a significant Simon interference effect was found within both RE and URE groups, there was no evidence of a statistically significant difference between groups on this task. Given that interference suppression has been associated with a wide range of control behaviors, including impulsive and emotional behaviors and habits, it is somewhat surprising that RE and URE do not differ in their interference suppression ability. Based on these results, performance on interference suppression tasks does not correspond with self-reported differences in control of dietary intake as measured by the Revised Restraint Scale.

In contrast, the larger interference effect in the Stroop task for the RE compared to the URE group provides further evidence that response inhibition is an important component in the control of eating behaviors and corresponds with dietary restraint. Given that performance on cognitive behavioral tasks do not always correspond to differences in self-reported behaviors that are presumed to be supported by the cognitive processes believed to be involved, it is interesting to note that the Revised Restraint Scale does capture differences in behavioral performance.

No significant difference in the Food Stroop interference effect was found between the URE and RE groups. It is possible that RE and URE groups did not differ on the Food Stroop task because self-reported dietary intake control measured by the Revised Restraint Scale does not correspond with the response inhibition processes required in a Food Stroop task. Specifically, the Food Stroop task examines the difference in reaction time required to respond to emotionally salient items versus neutral items. The required response (color naming) does not interfere with the processing of the stimulus itself; therefore, the Food Stroop effect may act as a measure of the individual's ability to inhibit an emotional response to items that draw attention away from the current task goals. Other studies have reported that the Food Stroop effect does not vary reliably between RE and URE (Brooks et al., 2011; Dobson & Dozois, 2004), perhaps indicating that it is not a measure that is sensitive to the differences between the two groups. Given that the Food Stroop effect is generally reported to be a small effect size, methodological choices involving sample size and experimental controls (e.g., requiring fasting before completing the experimental tasks and individually tailoring the food cues chosen for the study) may have prevented the effect from reaching statistical significance.

There was a significant main effect of dietary restraint group on reaction time on all three behavioral tasks; the RE group displayed faster response times than the URE group on each task. However, these reaction time differences were not driven by statistically significant differences in response accuracy. There are several potential accounts the faster reaction times for RE. One possible reason for this result may simply be unexplained between-group differences resulting from potential unknown influences inherent in the two samples. A second possible reason for the faster reaction times by RE is attentional processes and subsequent inhibition processes predicted to underlie dietary intake behaviors that define the RE group. Specifically, Herman and Polivy (1989) predicted that food items in the environment are more attention grabbing for RE than URE. Given that the Food Stroop task was completed in the same session as the Stroop and Simon tasks, these attention focusing effects of being exposed to food items may have affected processing in RE for the duration of the study in a way that differed from the overall effect on URE.

BIS scores were included as a measure of impulsivity that has been associated with control of eating behaviors; interestingly, BIS scores did not differ between RE and URE. This is similar to other studies that have found that although self-reported impulsiveness has been associated with multiple behavioral disorders, the correlation between self-reported impulsivity and behavioral measures of cognitive components of impulsivity is generally small (Lange & Eggert, 2015). The lack of a significant difference between RE and URE on BIS may indicate that the inhibition processes affecting behaviors reported on the Revised Restraint Scale are distinct from inhibition processes affecting behaviors reported on the BIS. Future studies should compare performance on inhibition tasks to survey data to clarify the distinct inhibition processes involved in impulsivity.

This study contributes to basic cognitive and health literature by providing more precise information about inhibition deficits in RE compared to URE. These results will enable researchers to improve cognitive health theories of dietary intake by providing more information about individual differences in cognitive processing ability that contribute to variance in health outcomes.

Practical Applications

For both RE and URE, diets high in nutrients and low in calories can help prevent poor health outcomes (Ammerman, Lindquist, Lohr, & Hersey, 2002; Psaltopoulou, Ilias, & Alevizaki, 2010). However, most people do not match their dietary intake to the recommended daily intake for multiple types of food and nutrients (US Health and Human Services and USDA, 2015). Therefore, behavioral goals for health interventions include increasing intake of nutritious food and decreasing intake of unhealthy but palatable foods. Multiple theoretical approaches incorporating cognitive constructs have been used to design nutrition interventions in the past, and have improved health outcomes. Newer health theories that emphasize the importance of individual differences in self-regulation processes and behaviors, along with greater desire for tailoring in health
interventions, will likely move cognition into the arena of nutrition and preventative health even more than before. This study provides more evidence that RE and URE have underlying individual differences in cognitive processing that may differentially affect their eating behaviors. Researchers interested in using a cognitive approach to improve eating behaviors may want to focus on these differences in response inhibition and interference suppression in URE and RE. Furthermore, in light of our finding that restraint scores are correlated with performance on specific inhibition tasks, future studies examining the efficacy of cognitive-based interventions targeting nutrition goals could reduce unexplained variance in outcomes by measuring restrained eating in their samples.

Conflict of Interest Statement
The authors declare that they have no conflict of interest.

References


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