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## Smoke and mirrors: Magnified beliefs that cigarette smoking suppresses weight

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### Abstract

Research suggests that for some smokers, weight concerns interfere with smoking cessation. Studies with individuals with eating disorders and weight concerns have indicated that weight-concerned individuals place undue faith in the effectiveness of certain weight control strategies; i.e., adopt a brand of magical thinking pertaining to food rules and dieting behaviors. The current study investigated whether weight-concerned smokers endorsed exaggerated beliefs in the ability of smoking to suppress body weight. Participants were 385 individuals undergoing treatment for smoking cessation. Prior to treatment, participants completed the Smoking Consequences Questionnaire –Adult (SCQ-A), the Dieting and Bingeing Severity Scale, and the Perceived Risks and Benefits Questionnaire (PBRQ). Results indicated that heightened beliefs in the effectiveness of smoking to control weight were related to eating and weight concerns; specifically, strong associations were observed between SCQ-A Weight Control scores and fear of weight gain, loss of control over eating, and body dissatisfaction. Although SCQ-A Weight Control scores were related to (self-reported) weight gain during a previous quit attempt, scores did not predict actual weight gain over the course of the cessation trial. Reported weight gain at previous attempts was also unrelated to actual weight gain over the current trial. These findings indicate that eating and weight concerned smokers may benefit from psychoeducation concerning the relatively modest and temporary ability of nicotine to suppress weight.

### Keywords

smoking; smoking cessation; weight concerns; eating disorders

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An oft-recognized feature in eating disorders is magical thinking regarding food, eating, and calories (Garner & Bemis, 1982). An individual with an eating disorder may hold such distortions as “If I eat this, I will gain 5 pounds.” In turn, these superstitious beliefs may motivate rigid rules regarding eating and dieting behaviors; for example, endorsement of a belief that “food consumed after 6:00 p.m. will be automatically converted to fat” may motivate restrictive eating at night. Further, information regarding the physiological dangers of overly restrictive dieting and purging may be actively ignored (Vitousek & Hollon, 1990). Therefore, an important component of cognitive treatments for eating disorders is psychoeducation regarding these food myths and the dangers of purgative behaviors, with the goal of adopting more flexible and healthy attitudes toward food and eating.

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Although not diagnostically tied to eating disorders, it has been proposed that weight concerns may motivate smoking initiation (Camp, Klesges, & Relyea, 1993; French, Perry, Leon, & Fulkerson, 1994) and may prevent successful smoking cessation (John, Meyer, Hapke, Rumpf, & Schumann, 2004; Pirie, Murray, & Luepker, 1991). Among both adolescents (Klesges, Elliot, & Robingson, 1997) and college women (Copeland & Carney, 2003), smoking rate and frequency has been linked with weight concerns and the subjective belief in the effectiveness of smoking as a weight control measure. Further, efforts to quit smoking may be thwarted by concerns about weight and shape; women, in particular, frequently resume smoking following modest weight gain (Office of the Surgeon General, 2001; Perkins, 2001), and higher weight concerns predict dropout in smoking cessation trials (Copeland, Martin, Geiselman, Rash, & Kendzor, 2006a). Finally, some women who smoke for perceived weight control benefits may effectively use the anorectic effects of nicotine to suppress urges to binge eat, and may then gain more weight during nicotine withdrawal due to insufficient strategies to prevent binge eating (Pomerleau et al., 1993). It should be emphasized that although weight concerns are more prevalent among women than men, a substantial portion of male smokers endorse elevated weight concerns and smoking to control their weight (Clark et al., 2004; Clark et al., 2006).

Investigations of individuals with eating disorders have reported some differences between smokers and nonsmokers in terms of eating disorder profiles. Individuals with bulimia nervosa are more likely to smoke than normal controls *and* psychiatric controls with affective and anxiety disorders (Welch & Fairburn, 1998). Adolescent girls with clinically significant eating disorders who also smoked reported significantly higher levels of body dissatisfaction and drive for thinness than non-smoking eating disorder patients (Wiseman, Turco, Sunday, & Halmi, 1998). A large-scale study employing an eating disorder registry also reported that smoking was associated with increased likelihood of binge eating and vomiting (Crisp, Sedgwick, Halek, Joughin, & Humphrey, 1999). Among obese women with binge eating problems, women with a history of smoking reported greater eating disturbance than non-smokers (White & Grilo, 2007).

Research has also investigated the degree of eating disturbance among smokers. Women reporting smoking for weight control (i.e., “weight-control smokers”) report heightened levels of dietary restraint and disinhibition (Pomerleau et al., 1993), which are associated features of eating disorder pathology. In community samples, cigarette smoking correlates with several features of eating disorder pathology, including greater body dissatisfaction and binge eating, although the magnitude of the associations is weaker than generally seen for clinical samples (von Ranson, Iacono, & McGue, 2002). Further, among adolescents, smoking is associated with heightened weight concerns and dieting behaviors, and these relationships are stronger among adolescent females than males (Potter, Pederson, Chan, Aubut, & Koval, 2004). Overall, the research on smoking, eating disorders, and sub-clinical eating concerns indicates that smoking is related to severity of eating disturbance.

Although smoking is related to body weight (Klesges, Klesges, & Meyers, 1991), and serves to reduce weight through a variety of physiological mechanisms (e.g., modest enhancements in metabolic rate), research shows that the physiologic advantage of smoking on weight suppression is very slight. Average weight gain following a quit attempt is modest, i.e., 3 to 4 kg, depending on length of follow-up (Klesges, Meyers, Klesges, & La Vasque, 1989; Perkins, 1993) and is related to the amount of smoking, initial body weight, and genetic factors (Ferrara, Kumar, Nicklas, McCrone, & Goldberg, 2001; Filozof, Fernandez Pinilla, & Fernandez-Cruz, 2004). Further, animal research has shown that the weight suppression effect of nicotine may be moderated by diet; when administered nicotine, rats on a high-fat diet reduced intake by significantly more than those on a normal chow diet. However, following nicotine withdrawal, the groups did not gain at different rates (Wellman et al., 2005). Interestingly, comparison

animals that did not receive nicotine gained more weight over the course of the trial than those receiving nicotine; i.e., the weight suppression effect of nicotine persisted even after withdrawal. Collectively, this research suggests that although nicotine effectively suppresses weight and is associated with weight gain during withdrawal, the effectiveness of nicotine as a means of weight control is marginal.

Because individuals with eating disorders maintain particular superstitions regarding food and calories, and undue faith in the effectiveness of purging as a means of weight control, the current study hypothesized that smokers endorsing eating and weight concerns would report stronger beliefs in the effectiveness of smoking in controlling weight. Eating and weight concerns were defined by a fear of weight gain, feelings of loss of control over eating, body dissatisfaction, and/or current or historical binge eating and purgative behaviors. Because previous research has shown that male and female smokers differ in degree of eating and weight concerns, we first tested the hypothesis that women, compared to men, would report greater eating and weight concerns and stronger beliefs in the utility of smoking to control weight. In addition, analyses were conducted to test whether heightened beliefs that smoking controls weight predicted actual weight gain following smoking cessation, as well as treatment outcome. Finally, exploratory analyses were conducted to investigate the relationship between eating and weight concerns and desired outcomes of smoking cessation.

## Method

### Participants

Participants were 385 individuals participating in a clinical trial for smoking cessation. The sample was 48.1% female (n=185) and 51.9% male (n=200). Mean age was 45.9 (sd=11.2); mean body weight (in pounds) was 156.5 (sd=31.7) for women and 193.5 (sd=31.1) for men. The racial/ethnic distribution was: 89.2% (n=337) Caucasian, 6.1% (n=23) African American, 3.4% (n=13) Hispanic, and 1.3% (n=5) Multi-racial. In terms of educational attainment, 3.3% (n=12) had less than a high school education, 35.0% (n=129) graduated high school or equivalent, 38.8% completed some college (n=143), and 23.0% (n=85) had a college degree.

### Procedure

Prior to any treatment, participants completed a self-report assessment battery. In addition to a demographic questionnaire, the following self-report measures were administered:

The *Dieting and Bingeing Severity Scale (DBSS)* (Kurth, Krahn, Nairn, & Drenowski, 1995) – is a self-report questionnaire originally designed to identify individuals with bulimia nervosa and to assess dieting severity. Key items used in the current study measure feelings of loss of control over eating, fear of weight gain, satisfaction with body shape, binge eating, and lifetime history of purgative behaviors (i.e., vomiting or using laxatives, diet pills, diuretics, or fasting for weight control).

The *Smoking Consequences Questionnaire – Adult (SCQ-A)* (Copeland, Brandon, & Quinn, 1995) measures expectancies of cigarette smoking. The original SCQ-A measures the desirability of a particular outcome and the probability of each outcome, yielding a common subjective utility score for each outcome. Participants completed only the likelihood portion of the questionnaire since previous research has found that the likelihood scores best discriminate smoking status (Brandon & Baker, 1991; Copeland et al., 1995). Individual items measure the expected consequences of smoking a cigarette, ranging from 0 (completely unlikely) to 9 (completely likely). The SCQ-A comprises 10 subscales: Negative Affect Reduction, Stimulation/State Enhancement, Health Risk, Taste/Sensorimotor Manipulation, Social Facilitation, Weight Control, Craving/Addiction, Negative Physical Feelings, Boredom

Reduction, and Negative Social Impression. Subscale scores reflect the means of the individual items comprising that scale.

**Cessation-Associated Weight Changes**—Participants reported the amount of weight that they had gained during previous quit attempts (i.e., “*What is the most weight you have gained during a quit attempt?*”) and the length of time over which the cessation-associated weight gain had occurred. Participants were also asked to predict the amount of weight they would expect to gain after quitting smoking. Actual weight changes were determined via measured clinic weights at baseline (pre-treatment), 6 weeks, 12 weeks, and 24 weeks. To account for individual variability of pre-treatment weights, weight changes were converted to a percentage of baseline weight.

The *Perceived Risks and Benefits Questionnaire (PRBQ)* (McKee, O’Malley, Salovey, Krishnan-Sarin, & Mazure, 2005) measures the perceived likelihood of various risks and benefits of smoking cessation. The subscales under investigation for this study were the Perceived Risk of Weight Gain (e.g., “I will gain weight”) and the Perceived Health Benefit (e.g., “I will lower my chance of developing heart problems”). The desirability of each of these outcomes was also assessed, using a 9-point Likert scale ranging from -4: “I would want to avoid this outcome” to +4: “I would desire the outcome.” Negative scores denote outcomes that would be perceived as negative, whereas positive scores reflect desirable outcomes.

**Treatment**—Participants were participating in a larger randomized clinical trial testing the effectiveness of naltrexone for smoking cessation. Results of this trial are reported elsewhere (O’Malley et al., 2006). In brief, participants who smoked at least 20 cigarettes daily were randomized to one four treatment conditions in which they received nicotine replacement therapy and oral naltrexone hydrochloride (placebo, 25mg, 50mg, or 100mg/d). As part of the study protocol, weight was measured at each clinic visit. Treatment outcome was defined at 6, 12, and 24 weeks as complete abstinence.

## Results

Table 1 reports the means and standard deviations of the SCQ-A subscales for men and women separately. The gender groups significantly differed on five of the ten subscales, with female smokers reporting higher scores for the Weight Control, Negative Affect Reduction, Health Risk, Negative Social Impression, and Craving/Addiction subscales. Reported in Table 2 are the means of key items in the DBSS measuring weight and dieting concerns. Consistent with previous research on gender and dieting and eating disorder features, women reported elevated weight and eating concerns compared to men.

A correlation matrix of the eating and weight concerns variables and the Weight Control subscale of the SCQ-A appears in Table 3<sup>1</sup>. As predicted, scores on the SCQ-A Weight Control subscale were strongly related to eating and weight concerns as measured by the DBSS. In particular, beliefs in the utility of smoking for weight control were strongly correlated with fear of weight gain and feelings of loss of control over eating, both of which are key cognitive aspects of eating disorder psychopathology. Further, scores on the Weight Control subscale were significantly related to both predicted weight gain following a quit attempt and the self-reported maximum amount of weight gained following a previous quit attempt. Eating and weight concerns were largely unrelated to scores on the other SCQ-A subscales. Although a

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<sup>1</sup>Because women and men differed in their reported weight concerns and beliefs in the effectiveness of smoking, we conducted correlation analyses separately for the gender groups. Fisher’s r-to-Z transformations of the correlation coefficients were conducted to test for group differences; no significant differences in magnitude of correlations were found across the gender groups.

few significant relationships were found, the correlations were modest and of questionable clinical utility.

Because of the possibility that weight gain during previous cessation attempts may have engendered a heightened belief in the utility of smoking to control weight, we also conducted analyses to determine whether the Weight Control subscale of the SCQ-A predicted actual weight gain over the course of the smoking cessation trial. Gender did not emerge as a significant predictor and was therefore excluded from these analyses. After controlling for medication group, percent change in body weight could not be predicted by scores on the Weight Control subscale. These non-relationships were consistent for 6 week ( $p=.91$ ), 12 week ( $p=.72$ ), and 24 week ( $p=.92$ ) outcomes, and remained non-significant when analyses were restricted to abstainers only. We also examined the relationship between SCQ-A Weight Control and weight gain within the placebo group only; the relationship was significant at the 24-week time point, such that higher scores on the Weight Control subscale were inversely related to percent weight gain ( $r=-.36$ ,  $p=.04$ ).

As an additional test, we also conducted regression analyses to determine whether reported weight gain at previous attempts could predict actual weight gain. After controlling for medication group and gender, weight gain in the current trial was unrelated to reported gain at previous smoking cessation attempts, for the 6 week ( $p=.54$ ), 12 week ( $p=.07$ ), and 24 week ( $p=.10$ ) time points. As a conservative test, we then restricted the analyses to the placebo group only; again, the amount of weight gain over the course of the trial (i.e., at each time point) was unrelated to self-reported weight gain at a prior quit attempt. Because the length of a previous quit attempt was correlated with the amount of reported weight gain during the attempt, we also investigated a weight-gain-per-unit-time variable, restricting the sample to corresponding weeks (i.e., 6 weeks, 12 weeks, and 24 week frames for previous quit attempts) to conduct comparable analyses. In each scenario, the amount of weight gain (per unit time) was unrelated to actual weight gain at the corresponding time points. This non-relationship held within each gender group, after controlling for medication dose, and when restricting the analysis to the placebo group only.

To investigate the influence of SCQ-A Weight Control beliefs on relapse, we conducted logistic regression analyses to determine whether SCQ-A Weight Control scores predicted smoking outcome. For the 6 week time point only, SCQ-A Weight Control scores were significantly related to outcome, and this relationship was mediated by treatment dose. The significant dose-by-Weight Control interaction revealed a protective effect of medication, such that individuals with higher SCQ-A Weight Control scores taking 100mg of naltrexone were less likely to smoke than similar individuals taking placebo ( $OR=.98$ ; 95% CI = .967–.995,  $p=.009$ ; Wald ( $df=1$ )=6.796). At 12 and 24 weeks, however, these relationships were not observed. Finally, treatment completion was not related to any of the weight variables measured at baseline.

## Exploratory Analyses

We conducted exploratory analyses to investigate the relationships between eating and weight concerns and desired outcomes of smoking cessation. In particular, we were interested in the extent to which weight-concerned smokers might value the weight-related benefits of smoking (i.e., wish to avoid the risk of weight gain) more than the other known health benefits of cessation. As expected, the perceived risk of weight gain as measured by the PRBQ was correlated with the SCQ-A Weight Control Subscale ( $r=.67$ ,  $p<.001$ ), fear of weight gain ( $r=.48$ ,  $p<.001$ ), body dissatisfaction ( $r=.29$ ,  $p<.001$ ), and history of purging ( $r=.18$ ,  $p=.001$ ). We then investigated the desired versus undesired outcomes of the Health Benefits and Risk of Weight Gain subscales of the PRBQ. To directly compare the perceived value of weight control in relation to health benefits of smoking cessation, we generated a discrepancy score between the undesired outcome of weight gain and the desired outcome of health benefit. Only those

participants who perceived weight gain to be an undesirable outcome (76% of the sample) were included, and the absolute value of these ratings were used to generate discrepancy scores. Positive discrepancy scores indicated that the undesirability of weight gain was rated more strongly than the desired outcome of health benefits following cessation. (As an example, if an individual rated weight gain as a strongly negative outcome that they would want to avoid, their desirability score might be  $-4$ . If their health benefit score was  $+3$ , the value of the discrepancy score would be  $+1$ , indicating that the undesirability of weight gain was more extreme than the desirability of health benefits.) It should be noted that 54% of the sample reported that they desired health benefits of smoking to a stronger degree than their desire to avoid weight gain, for 36% the two outcomes were equally desirable, and for the remaining 10%, the risk of weight gain was rated as more undesirable than the health benefits were rated as desirable. As expected, discrepancy scores were correlated with eating concerns; specifically, higher discrepancy scores were related to fear of weight gain ( $r = .41, p < .001$ ), body dissatisfaction ( $r = .34, p < .001$ ), and loss of control over eating ( $r = .26, p < .001$ ). In addition, there was a significant effect for gender, with women reporting higher discrepancy scores ( $M = -0.63, sd = 1.3$ ) than men ( $M = -1.35, sd = 1.7$ );  $t(260) = 2.9, p < .001$ . Because of the gender differences in discrepancy scores, the correlation analyses were repeated within gender groups; as before, the pattern of correlations did not differ across gender groups.

## Discussion

Compared to participants with fewer eating and weight concerns, weight-concerned smokers in this study enlisted more faith in the ability of smoking to suppress weight. Specifically, individuals with a history of overly restrictive dieting, binge eating, and purgative behaviors were more likely to believe in the effectiveness of smoking as a means of weight control. By extension, this exaggerated faith in smoking to control weight may be similar to the cognitive distortions observed in eating disorders, in which individuals maintain highly irrational superstitions regarding food and calories as well as undue confidence in the effectiveness of purgative behaviors to control weight.

Although men and women differed on several smoking consequences scales and on the eating and weight concerns items, the relationship between weight concerns and consequences were similar across genders. Therefore, although eating pathology may be more pronounced in women, the degree to which men are weight-concerned predicts their beliefs in the effectiveness of smoking for weight control as well. While recent intervention studies have incorporated components to address weight preoccupation in female smokers (Copeland, Martin, Geiselman, Rash, & Kendzor, 2006b; Perkins et al., 2001), our findings suggest that male smokers are also motivated to continue smoking as a means of weight control and could therefore benefit from targeted interventions. Indeed, recent research has found that weight concerns are prevalent among male smokers (Clark et al., 2004; Clark et al., 2006) and may pose particular challenges in cessation attempts for men as well as women.

The finding that the belief in the effectiveness of smoking for weight control was unrelated to actual weight gain is critical. Weight-concerned individuals reported that they gained more weight during previous quit attempts, however prospectively they did not actually gain more weight than those participants reporting less weight preoccupation. Of particular importance is that weight gain at previous attempts was self-reported and retrospective, and therefore subject to recall bias. Indeed, given that self-reported historical weight gain was unrelated to actual weight gain over the course of this trial, recall bias is highly plausible and adds further support that weight-concerned smokers may hold particular cognitive distortions surrounding smoking as a means of weight management.

The current findings highlight the need for targeted cognitive restructuring in treatment for smoking cessation. Although there is evidence that smoking does suppress appetite to some degree, weight-concerned smokers may have exaggerated perceptions of the utility of smoking for weight management. As mentioned above, individuals with eating disorders maintain undue faith in the ability of purging to suppress weight gain, which may offset the known dangerous consequences of the behavior. A similar type of cost-benefit analyses may be operating for some motivational aspects of smoking; that is, the perceived benefits in the form of weight suppression may, for some smokers, offset the other health risks. Indeed, our exploratory analyses support this hypothesis: the stronger undesirability of weight gain, in relation to the desired outcome of health benefits, the higher the eating-disordered thoughts and behaviors (i.e., fear of weight gain, loss of control over eating, and body dissatisfaction). As in the case with purgative behaviors, it appears that the weight control benefits of smoking may be overestimated.

A central component in cognitive behavioral therapy for eating disorders is psychoeducation regarding myths and/or magical thinking surrounding food and calories. The current findings suggest that weight-concerned smokers may benefit from similar psychoeducation regarding the limited effectiveness of smoking for weight management. As indicated by previous research, different types of weight concerns (i.e., general versus smoking specific) may differentially impact treatment outcome (Copeland et al., 2006a; Jeffery, Hennrikus, Lando, Murray, & Liu, 2000). Therefore, targeted psychoeducation specifically to dismantle exaggerated predictions of weight gain after quitting seems especially warranted. Indeed, targeted cognitive interventions have been effective in improving abstinence rates for weight-concerned smokers (Perkins et al., 2001) and in improving body image and decreasing weight concerns over the course of smoking cessation trials (Clark et al., 2005).

Certain limitations of this study should be noted. We used several items of the DBSS to measure weight preoccupation, rather than using validated scales typically used in eating disorder research. Therefore, our ability to compare current findings to those focused more specifically on dieting behaviors and weight concerns is limited. A relative strength, however, is that the items directly measure fear of weight gain, loss of control over eating, binge eating, and purgative behaviors, all of which are key features of eating disorders. In addition, research suggests two distinct types of weight concerns, smoking-specific and general (Jeffery et al., 2000; Pomerleau et al., 1993), and that the specific type of weight concerns differentially predicts treatment outcome and/or willingness to attempt to quit (Copeland et al., 2006a). Future research should include both general and smoking-specific weight concerns to best elucidate the complex interactions between differential weight concerns, eating pathology, motivations for smoking, and the impact of weight gain on successful abstinence. Finally, definitive longitudinal investigations should investigate actual weight changes in relation to smoking initiation, weight gain during quit attempts, and the development of beliefs regarding smoking as a means of weight control.

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Table 1

Means for SCQ-A subscales

	Male		Female		Total		t	p
	M	(sd)	M	(sd)	M	(sd)		
<b>SCQ-A Subscales</b>								
Weight Control	3.52	(2.41)	5.14	(2.78)	4.29	(2.71)	6.05	<0.01
Negative Affect Reduction	5.59	(1.84)	6.23	(2.12)	5.89	(2.00)	3.11	<0.01
Health Risk	8.21	(1.19)	8.56	(1.00)	8.38	(1.11)	3.06	<0.01
Negative Social Impression	5.31	(1.96)	5.82	(2.28)	5.55	(2.13)	2.35	0.02
Craving/Addiction	6.75	(1.37)	7.03	(1.46)	6.88	(1.42)	1.97	0.05
Stimulation/State Enhancement	3.60	(1.96)	3.87	(2.20)	3.73	(2.08)	1.26	0.21
Boredom	5.54	(1.96)	5.65	(2.38)	5.59	(2.17)	0.52	0.60
Social Facilitation	3.94	(2.02)	4.00	(2.17)	3.97	(2.09)	0.29	0.77
Negative Physical Feelings	4.09	(2.02)	3.99	(2.37)	4.04	(2.19)	-0.45	0.65
Taste/Sensorimotor	4.49	(1.97)	4.30	(2.01)	4.40	(1.99)	-0.95	0.34

Table 2

Means for Eating/Weight concerns and weight changes

	Male		Female		Total		T	P
	M	(sd)	M	(sd)	M	(sd)		
<b>Eating/Weight Concerns</b>								
Terrified of gaining weight	2.12	(1.1)	3.03	(1.2)	2.56	(1.2)	7.80	<0.01
How often do you diet?	1.74	(1.0)	2.57	(1.2)	2.14	(1.2)	7.29	<0.01
Feel out of control when eating	1.75	(0.9)	2.04	(0.9)	1.89	(0.9)	3.07	<0.01
Self perception of weight	3.48	(0.7)	3.67	(0.7)	3.57	(0.7)	2.51	0.01
Satisfied with body shape	3.12	(1.0)	2.93	(1.0)	3.03	(1.0)	-1.87	0.06
<b>Cessation-associated Weight Changes</b>								
Most weight gain previous attempts (%)	4.60	(5.9)	7.91	(9.8)	6.26	(8.3)	3.51	<0.01
Predicted weight gain following cessation (%)	6.83	(5.8)	10.56	(6.6)	8.60	(6.5)	5.52	<0.01
Actual weight gain (%) – 6 weeks	1.44	(2.3)	1.64	(2.3)	1.54	(2.3)	0.71	0.48
Actual weight gain (%) – 12 weeks	2.37	(3.4)	2.69	(3.9)	2.52	(3.6)	0.64	0.52
Actual weight gain (%) – 24 weeks	3.63	(5.6)	4.03	(5.8)	3.83	(5.7)	0.41	0.68
<b>Weight Gain</b>								
Most weight gain previous attempts (lbs)	8.93	(11.29)	12.12	(14.52)	10.52	(13.08)	-2.10	0.04
Predicted weight gain following cessation (lbs)	13.10	(10.85)	16.30	(10.49)	14.62	(10.78)	-2.76	0.01
Actual weight gain (%) – 6 weeks (lbs)	2.81	(4.56)	2.52	(3.72)	2.66	(4.15)	0.59	0.55
Actual weight gain (%) – 12 weeks (lbs)	4.47	(6.59)	4.12	(6.22)	4.30	(6.40)	0.40	0.69
Actual weight gain (%) – 24 weeks (lbs)	6.61	(10.99)	6.10	(9.15)	6.36	(10.08)	0.30	0.76

Table 3

on matrix of eating/weight concerns and SQ-A subscales

	Weight Control	Negative Social Impression	Negative Affect Reduction	Stimulation/State Enhancement	Health Risk	Taste/Sensorimotor	Social Facilitation	Craving/Addiction	Negative Physical Feelings	Boredom
ing	<b>.47</b> **	.13**	.16**	.12*	.16	-.06	.04	.13*	.13*	.11*
	<b>.34</b> **	<b>.10</b> **	.11*	.14**	.10	.03	.16**	.11*	.11*	.13*
	-.28**	-.09	-.09	-.06	-.11	.03	-.10	-.13*	-.05	-.06
	.10	.14**	.01	.00	.07	.07	.13*	.05	.02	.09
vious attempts %	<b>.20</b> **	.09	.09	-.04	.01	-.01	.03	.08	-.02	.05
	<b>.36</b> **	-.01	-.10	-.12	.01	-.18	-.04	-.11	.08	-.07
	<b>.34</b> **	.08	.03	.03	.02	-.03	.03	-.03	.05	.05

*Addict Behav.* Author manuscript; available in PMC 2008 October 1.  
 in correction for multiple comparisons, only those in bold italics are significant.