Restraint, Weight Loss, and Variability of Body Weight

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Restrained and unrestrained subjects (n = 24) were weighed daily for a 6-week period and again 6 months later in order to determine whether dietary restraint or relative body weight is the better predictor of weight variability. Restraint was a significantly better predictor of naturally occurring weight fluctuations than was relative body weight. Furthermore, the 2 factors of the Restraint Scale, Concern for Dieting and Weight Fluctuations, were both significant predictors of weight variability. We propose that exaggerated weight fluctuations are not a natural concomitant of higher body weight but possibly the consequence of a cycle of dieting and overeating, which seems to preclude actual weight loss.

Although restrained eaters were initially proposed to be maintaining their body weight below some physiological set point (Herman & Mack, 1975), the relation between dietary restraint and body weight has never been explicitly examined. By definition, dieters are those persons who restrict their intake of food in order to achieve or to maintain a lower weight. Heatherton, Herman, Polivy, King, and McGree (1988) argued that restrained eaters, who are chronic dieters, are not particularly successful at losing weight, possibly because dieters vacillate between periods of intense caloric restriction and bouts of disinhibited eating (Polivy & Herman, 1985). The bouts of overeating tend to cancel out the effects of undereating, precluding weight loss. This proposed pattern has received mixed support outside of the laboratory. Some researchers have found little evidence that dieters engage in eating splurges (cf. Klesges, Klem, & Bene, 1989; Knight & Boland, 1989), and others have found that dieters do experience bouts of excessive eating (Kirkley, Burge, & Ammerman, 1988). The proposal that such eating does occur is supported by laboratory evidence, and anecdotal reports suggest that eating splurges are relatively common occurrences among those normally trying to restrict their caloric intake (see Polivy & Herman, 1985, for a review).

The primary goal of this study was to examine the assumption that chronic dieters display greater weight fluctuations than do nondieters because they alternate between dieting and overeating (Herman & Polivy, 1982) rather than simply because they are overweight. This increased variability is a central component of the Weight Fluctuations (WF) factor of the Restraint Scale; the other factor is Concern for Dieting (CD; Polivy, Herman, & Howard, 1988). Drenowski, Riskey, and Desor (1982) argued, however, that the presence of these weight fluctuation items contaminates the Restraint Scale insofar as overweight persons are likely to score high on the scale even though they may be rather unconcerned about dieting. Their argument is based on the observation by Bray (1976) that obese persons display large spontaneous weight fluctuations due mainly to diuresis. Ruderman (1983, 1985, 1986) has likewise argued that high restraint scores among obese subjects may be due to weight fluctuations not necessarily linked to dieting. Ruderman (1986) contended that this contamination of the Restraint Scale may explain why the obese have not shown the counterregulatory behavior typically displayed by normal-weight restrained subjects (but see Heatherton et al., 1988, for an alternative explanation).

What precisely is the relation between body weight and the Restraint Scale? The correlation between restraint and percentage overweight is typically about .40 (Heatherton et al., 1988), which suggests that obese persons do indeed obtain higher restraint scores than do normal-weight persons. However, it is unclear whether obese persons' higher scores are due to their concern for dieting, greater weight fluctuations, or both. Whereas Blanchard and Frost (1983) and Ruderman (1985) have reported that the WF factor is more highly correlated with overweight than is the CD factor, Lowe (1984) reported that the correlation between overweight and CD is significantly higher than the correlation between overweight and WF and that the relation between WF and overweight is eliminated when CD is used as a partial correlate. Herman and Polivy (1982) pointed out that although Drenowski et al. (1982) found higher WF scores in their obese subjects, CD scores were also high. Thus, the data do not clearly indicate whether large weight fluctuations are due mainly to exercising restraint or to having a higher weight. Also, previous findings are based on self-reports rather than on actual fluctuations in weight, which raises the possibility that the reports were biased. Accordingly, we set out to measure weight fluctuations directly. Subjects were weighed on a daily basis for 6 weeks in order to determine the best predictors of weight fluctuations.

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An additional goal of this study was to examine whether restrained eaters actually lose weight. Heatherton et al. (1988) argued that bouts of disinhibited eating may preclude weight loss. However, recent conceptualizations of restraint (e.g., Stunkard & Messick, 1985; Van Strien, 1986) have attempted to identify persons who are successful at restricting food intake without concomitant bingeing. For example, the Cognitive Restraint factor of the Three Factor Eating Questionnaire (Stunkard & Messick, 1985) is related to decreased fat-cell size (Brief, Stunkard, & Hirsch, cited in Stunkard, 1981), whereas scores on the Restraint Scale are not. Given the recent surge of interest in (re)defining restraint, it is surprising that there are no data that examine if, over time, restrained eaters are actually successful at losing weight or if periodic overeating cancels out attempts at weight loss. Thus, a second goal of this research was to examine the predictors of weight change over a reasonably long time—6 months.

Method

Subjects

Twenty-seven women at Erindale College of the University of Toronto, Toronto, Ontario, Canada, agreed to participate in this study. Subjects were classified as restrained if they obtained a score of 16 or higher on the Restraint Scale (Herman & Polivy, 1980); 10 subjects in this study were classified as restrained, and 17 were classified as unrestrained. Three subjects withdrew from the experiment during the 6th week, and their data were not included in any of the analyses. The remaining 24 subjects ranged from 25.8% below ideal body weight to 17.8% above ideal body weight (M = -4.9%, SD = 13.8%; Metropolitan Life Insurance Company, 1983). The mean weight was 125.5 lbs. (56.9 kg; SD = 22.3 lbs. [10.1 kg]), with a range from 95.0 to 173.0 lbs. (43.1 to 78.5 kg). Ten subjects were classified as underweight (>-10% below ideal; M = 18.2%, SD = 5.6%), 9 were classified as average weight (10% above or below ideal; M = 1.3%, SD = 5.4%) and 5 were classified as overweight (>10% above ideal; M = 14.7%, SD = 3.6%).

Procedure

The subjects agreed to participate in a study to examine personality correlates of health regulation. As part of this study, they reported to the Health Lab each morning (Monday to Friday) for 6 weeks to have their weight measured. Each week they filled out a questionnaire about their general health and significant life events. They also filled out the Restraint Scale and the Eating Disorders Inventory (EDI; Garner et al., 1983) at the beginning of the first session. Most of the other questionnaires examined the subjects' physical health and life stress experiences. We also included a number of personality and mood scales to help convince the subjects that we were interested in overall health and stress levels. The subjects were asked each day during the weighing how they were feeling, and any mention of a health problem was carefully noted by the assistant. These methods were used to emphasize the health aspects of the study rather than the weight aspects.

Most subjects missed at least 1 day during the experimental period. These absences did not follow any particular pattern or interact with any of the variables of interest (restrained and unrestrained subjects were equally likely to miss appointments). Days on which subjects were absent were not included in the data analysis.

Classification of Subjects

On the basis of convention (see Heatherton, Polivy, & Herman, 1989), the subjects who scored higher than 15 on the Restraint Scale were classified as dieters, and those who scored 15 or less were classified as nondieters. To provide further support for the notion that our dieters were interested in losing weight, we had each of the subjects complete the EDI (Garner et al., 1983). Restrained subjects scored higher than unrestrained subjects on the Drive for Thinness (6.9 ± 5.7 vs. 2.1 ± 2.3), t(22) = 2.95, p < .008, and Body Dissatisfaction (17.9 ± 4.7 vs. 7.1 ± 6.1), t(22) = 4.54, p < .0002, subscales of the EDI and marginally higher on the Bulimia subscale (4.0 ± 4.6 vs. 0.9 ± 2.8), t(22) = 2.02, p < .06. There were no differences between restrained and unrestrained subjects on the Ineffectiveness, Perfectionism, Interpersonal Distrust, Interceptive Awareness, or Maturity Fears EDI subscales (t < 1). Overall, this pattern indicates that our restrained subjects were dissatisfied with their bodies and desired to lose weight.

Weight Variability

Classification of periods. Weight fluctuations were defined as the absolute value of the difference between comparison days. Daily weight fluctuations (DWF) were calculated from the differences in absolute weight between neighboring days (Monday–Tuesday, Tuesday–Wednesday, Wednesday–Thursday, and Thursday–Friday). The largest within-week fluctuation (LWF) was found by subtracting the lowest from the highest body weight in each weekly period (Monday to Friday). Weekly weight fluctuations (WWF) were based on the difference between each Tuesday's weight (Tuesday was chosen because it had the most stable attendance). An initial repeated measures analysis of variance (ANOVA) was used to determine if weight variability changed over the 6-week period. There were no significant effects for LWF, F(5, 110) = 0.67, p > .10, DWF, F(5, 110) = 1.60, p > .10, or WWF, F(5, 110) = 1.20, p > .10.1

Restraint versus body weight. The correlations between restraint and LWF, r(22) = .57, r2 = 29.5%, p < .005, and between percentage over ideal body weight and LWF, r(22) = .41, r2 = 13.4%, p < .05, were both significant. When restraint was used as a partial correlate, relative weight was not significantly correlated with LWF (rrestain = .03, p > .10). When, however, relative weight was used as the partial correlate, restraint remained significantly correlated with LWF (rweight = .43, p < .05). A similar pattern obtained with WWF for restraint, r(22) = .49, r2 = 21.0%, p < .02, and for percentage over ideal body weight, r(22) = .46, r2 = 17.0%, p < .003, although the partial correlation of restraint and WWF (with relative weight as the partial

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1 We analyzed weight changes that occurred from Friday to Monday to examine whether weight variability was heightened over weekends. This was done because of the notion that some dieters report being most likely to break their diets on weekends. A repeated measures analysis of variance indicated that dieters and nondieters did not differ in their weight variability over the 5 weekends, F(1, 22) = 1.74, p > .20, and that there was no interaction between restraint and time period, F(4, 88) = 1.76, p > .15.
correlate) failed to reach significance ($t_{\text{weight}} = .28, p > .10$).
Neither restraint, $r(22) = .33, p > .10$, nor body weight, $r(22) = .20, p > .10$, were significantly related to DWF.

Another way to examine these data is to classify subjects into groups and look at between-group differences. As may be seen in Table 1, restrained subjects had larger weight fluctuations than unrestrained subjects, although significantly so only for WWF and LWF.\(^2\) Note that restrained subjects remained more variable than unrestrained subjects over the 6-week period; the interaction failed to obtain significance in a one-between (restraint), one-within (6 weekly periods) repeated measures ANOVA, $F(5, 110) = 1.04, p > .10$, although the main effect of restraint was quite strong, $F(1, 22) = 9.70, p < .005$. When subjects were classified into groups on the basis of the percentage of ideal weight (underweight, average, or overweight) rather than restraint, there were no significant differences between groups on DWE, $F(2, 21) = 1.58, p > .10$, or LWE, $F(2, 21) = 1.64, p > .10$, although there was a marginal effect for WWF, $F(2, 21) = 2.86, p < .08$. As may be seen in Table 2, the average-weight group had greater WWF levels than the underweight group (by Fisher’s least significant difference, $p < .05$) but was not significantly different from the overweight group.

**Subfactors of the Restraint Scale.** Both CD, $r(22) = .50$, and WF, $r(22) = .50$, were significantly correlated with LWF ($p < .01$). The simultaneous multiple regression (Wampold & Freund, 1987) of CD, WF, and the CD X WF interaction on LWF resulted in $R^2 = 40.5\%$ (Multiple $R = .70$), $F(3, 20) = 6.22, p < .004$. An analysis of the partial regression coefficients revealed that all three predictors were significant: CD, $\beta = .101 \pm .034, p < .007$; WF, $\beta = .137 \pm .046, p < .008$; and CD X WF, $\beta = -.013 \pm .005, p < .03$. An examination of the interaction between CD and WF revealed that only those subjects who scored low on both the CD and WF factors had small weight fluctuations. Those few subjects who scored high on one of the factors and low on the other had LWF scores that were comparable to those who scored high on both. Thus, CD and WF appear to contribute equally to LWF.

WF was significantly related to WWF, $r(22) = .65, p < .001$, whereas CD was not, $r(22) = .20, p > .10$. The simultaneous multiple regression of CD, WF, and the CD X WF interaction on WWF resulted in $R^2 = 38.4\%$ (Multiple $R = .68$), $F(3, 20) = 5.77, p < .006$. An analysis of the partial regression coefficients revealed that only WF was a significant predictor of WWF ($\beta = .202 \pm .087, p < .04$). Neither the partial regression coefficients for CD nor the CD X WF interaction were significant ($p > .10$). Finally, WF was not significantly related to DWF, $r(22) = .22, p > .10$, whereas CD was marginally related, $r(22) = .35, p < .10$.

The simultaneous prediction of DWF resulted in $R^2 = 15.9\%$ (Multiple $R = .52$), $F(3, 20) = 2.45, p < .09$. Even though the overall regression model was nonsignificant, the partial regression coefficient was significant for CD ($\beta = .074 \pm .030, p < .03$), but not for WF or the CD X WF interaction ($p > .10$).

Overall, both CD and WF were related to measures of weight fluctuation. Furthermore, the interaction of CD and WF is important for predicting within-week weight fluctuation. WF appears to be more closely related to weekly fluctuations, whereas CD seems more closely related to daily variation. The correlation between CD and WF was $.52 (p < .05)$, which is typical of values previously found (Heatherton et al., 1988).

**Weight Loss.**

We were also interested in examining whether restrained subjects lost weight over time. We therefore examined weight changes over the 6-week period and then again at 6 months. Although the rather small number of subjects precludes drawing definitive conclusions, there are currently no data which indicate how successful restrained eaters are at achieving their weight loss goals. The current study allowed us to make a preliminary examination of weight change among restrained eaters.

**Six-week period.** A one-between (restraint status), one-within (five weekly differences) repeated measures ANOVA was used to examine weight loss over the 6-week period. There were no main effects for restraint, $F(1, 22) = .70, p > .10$, or time period, $F(4, 88) = .87, p > .10$, nor was there an interaction between them, $F(4, 88) = 1.49, p > .10$. As may be seen in Table 1, neither restrained nor unrestrained subjects lost a significant amount of weight. The subjects were then classified as either having gained weight (more than 2 lb. [0.9 kg]), lost weight (more than 2 lb.), or remained the same. Although one third (33.3%) of unrestrained subjects lost at least 2 lb. over the 6-week period, only 11.1% of restrained subjects lost this amount of weight. Just over three quarters of the restrained subjects (77.8%) and 60% of the unrestrained subjects did not experience a change in weight status. Overall, weight loss category and restraint were unrelated, $\chi^2(2, N = 24) = 1.51, p > .10$.

The subjects were also classified according to relative weight group. A repeated measures ANOVA revealed no significant main effects for weight group, $F(2, 21) = 1.58, p > .10$, or time period, $F(4, 84) = .85, p > .10$, nor was there an interaction, $F(8, 84) = 1.00, p > .10$. Just over one half of average-weight subjects (55.6%) lost at least 2 lb. during the 6-week period, whereas only 20% of overweight and no underweight subjects lost at least 2 lb. In fact, 80% of overweight subjects and all of the underweight subjects remained at the same weight (the only subjects to gain weight were 22.2% of the average-weight subjects).

Overall, this pattern suggests that average-weight subjects are more likely to change weight (both more likely to lose and gain weight) than overweight or underweight subjects, $\chi^2(4, N = 24) = 13.71, p < .01$. Note that the amount of weight loss was not significant for any weight group (see earlier ANOVA).

**Six-month data.** Twenty subjects (13 unrestrained and 7 restrained) returned for a 6-month follow-up. The unrestrained subjects started the experiment at a mean of 113.2 lb. (51.5 kg)

\(^2\) We classified subjects as dieters or nondieters on the basis of our normal cutoff of 16 on the Restraint Scale. It may be argued that it is more appropriate to use a median split on the Restraint Scale to classify subjects. Doing so produced a similar pattern of results, although the new analyses were generally stronger than those reported in Table 1. For example, when subjects were classified according to a median split on the restrained variable, dieters were more variable on the largest within-week fluctuation (2.2 vs. 1.7 lb. [1.0 vs. 0.8 kg]), $t(22) = 4.37, p < .0002$, and weekly weight fluctuation (1.8 vs. 1.0 lb. [0.8 vs. 0.5 kg]), $t(22) = 2.80, p < .02$, measures and marginally more variable on the daily weight fluctuation measure (0.1 vs. 0.9 lb. [0.5 vs. 0.4 kg]), $t(22) = 2.06, p < .06$. When a median split was used to classify subjects, there were no differences between dieters and nondieters in weight suppression index scores (3.6 vs. 1.1), $t(22) = 1.33, p > .10$. 
and averaged 114.4 lb. (52.0 kg) 6 months later. The restrained subjects started this study at a mean of 137.5 lb. (62.5 kg) and averaged 118.0 lb. (62.7 kg) 6 months later (see Table 1). Furthermore, when the subjects were classified as gaining weight (more than 2 lb.), losing weight (more than 2 lb.), or staying the same, there was no significant relation between restraint status and weight-change status, $\chi^2(2, N = 20) = 1.30, p > .10$. Thus, restrained subjects are not typically successful at losing weight (although apparently they do not gain weight either).

**Alternative Predictors**

A weight suppression index (WSI) was calculated according to the method of Lowe and Kleifield (1988): $\text{WSI} = (\text{Greatest Weight Ever} - \text{Current Weight}) \div \text{Ideal Weight} \times 100$. Ideal weights (Metropolitan Life Insurance Company, 1983) are used to control for the effects of height. The WSI was unrelated to LWF, $r(22) = .04, p > .10$. DWF, $r(22) = .19, p > .10$, WWR, $r(22) = .20, p > .10$, or weight loss at 6 weeks, $F(1, 22) < 1$, or at six months, $F(1, 118) < 1$. Thus, weight suppression was unrelated to weight variability or weight change (see Table 1). As may be seen in Table 1, restrained subjects had marginally higher WSI scores than unrestrained subjects, $r(22) = .40, p < .06$.

**Discussion**

The results of this study support the contention that restraint is a better predictor of weight fluctuations than is relative weight. It thus appears that overweight persons are not more likely to score high on the Restraint Scale simply because they weigh more (as argued by Drenowski et al., 1982). Restraint scores were shown to explain a significant proportion of the variance in weight fluctuations after the effects of body weight had been partialed out. In contrast, percentage overweight failed to add significantly (or, in fact, at all) to the explanation of

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**Table 1**

*Weight Change and Weight Variability in Pounds as a Function of Restraint Status*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Restrained</th>
<th>Unrestrained</th>
<th>$M$</th>
<th>$SD$</th>
<th>$t$</th>
<th>$df$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Month</td>
<td>-2.17</td>
<td>5.47</td>
<td>.29</td>
<td>1.52</td>
<td>1.66</td>
<td>22</td>
<td>.11</td>
</tr>
<tr>
<td>Six weeks</td>
<td>-2.19</td>
<td>7.18</td>
<td>-0.55</td>
<td>2.16</td>
<td>0.84</td>
<td>22</td>
<td>.41</td>
</tr>
<tr>
<td>Six months*a</td>
<td>0.50</td>
<td>4.23</td>
<td>1.12</td>
<td>2.95</td>
<td>0.38</td>
<td>18</td>
<td>.71</td>
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<tr>
<td>Weight fluctuation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily average</td>
<td>1.13</td>
<td>0.24</td>
<td>0.94</td>
<td>0.32</td>
<td>1.56</td>
<td>22</td>
<td>.13</td>
</tr>
<tr>
<td>Largest within week</td>
<td>2.22</td>
<td>0.34</td>
<td>1.77</td>
<td>0.34</td>
<td>3.12</td>
<td>22</td>
<td>.005</td>
</tr>
<tr>
<td>Weekly average</td>
<td>1.81</td>
<td>0.93</td>
<td>1.13</td>
<td>0.45</td>
<td>2.41</td>
<td>22</td>
<td>.025</td>
</tr>
<tr>
<td>Monthly average*b</td>
<td>2.99</td>
<td>4.40</td>
<td>1.33</td>
<td>0.68</td>
<td>1.45</td>
<td>22</td>
<td>.16</td>
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<tr>
<td>Weight suppression index</td>
<td>4.61</td>
<td>6.18</td>
<td>0.94</td>
<td>2.80</td>
<td>2.00</td>
<td>22</td>
<td>.06</td>
</tr>
<tr>
<td>Weight over personal ideal</td>
<td>17.42</td>
<td>12.40</td>
<td>6.67</td>
<td>6.49</td>
<td>2.81</td>
<td>22</td>
<td>.01</td>
</tr>
</tbody>
</table>

*Note*. Cell sample sizes were 10 restrained and 13 unrestrained subjects.

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**Table 2**

*Weight Change and Weight Variability in Pounds as a Function of Relative Weight*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Underweight</th>
<th>Average weight</th>
<th>Overweight</th>
<th>$M$</th>
<th>$SD$</th>
<th>$M$</th>
<th>$SD$</th>
<th>$F$</th>
<th>$df$s</th>
<th>$p$</th>
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</thead>
<tbody>
<tr>
<td>Weight change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Month</td>
<td>1.05</td>
<td>1.78</td>
<td>-2.72</td>
<td>4.97</td>
<td>-0.23</td>
<td>1.63</td>
<td>3.04</td>
<td>2,21</td>
<td>.07</td>
<td></td>
</tr>
<tr>
<td>Six weeks</td>
<td>0.58</td>
<td>1.01</td>
<td>-3.11</td>
<td>7.13</td>
<td>-1.15</td>
<td>1.83</td>
<td>1.58</td>
<td>2,21</td>
<td>.23</td>
<td></td>
</tr>
<tr>
<td>Six months*a</td>
<td>1.65</td>
<td>2.83</td>
<td>0.89</td>
<td>3.66</td>
<td>-1.58</td>
<td>4.27</td>
<td>1.09</td>
<td>2,17</td>
<td>.36</td>
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<td>Weight fluctuation</td>
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<td></td>
<td></td>
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<td></td>
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<tr>
<td>Daily average</td>
<td>0.92</td>
<td>0.31</td>
<td>1.15</td>
<td>0.33</td>
<td>0.94</td>
<td>0.99</td>
<td>1.58</td>
<td>2,21</td>
<td>.23</td>
<td></td>
</tr>
<tr>
<td>Largest within week</td>
<td>1.78</td>
<td>0.44</td>
<td>2.08</td>
<td>0.36</td>
<td>2.03</td>
<td>0.30</td>
<td>1.64</td>
<td>2,21</td>
<td>.22</td>
<td></td>
</tr>
<tr>
<td>Weekly average</td>
<td>1.01</td>
<td>0.39</td>
<td>1.74</td>
<td>1.00</td>
<td>1.50</td>
<td>0.34</td>
<td>2.87</td>
<td>2,21</td>
<td>.08</td>
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<tr>
<td>Monthly average*b</td>
<td>1.40</td>
<td>0.82</td>
<td>2.85</td>
<td>4.48</td>
<td>1.43</td>
<td>0.37</td>
<td>0.73</td>
<td>2,21</td>
<td>.49</td>
<td></td>
</tr>
<tr>
<td>Weight suppression index</td>
<td>2.65</td>
<td>4.51</td>
<td>0.88</td>
<td>2.58</td>
<td>4.23</td>
<td>7.35</td>
<td>0.88</td>
<td>2,21</td>
<td>.42</td>
<td></td>
</tr>
<tr>
<td>Weight over personal ideal</td>
<td>3.08</td>
<td>4.34</td>
<td>11.47</td>
<td>8.62</td>
<td>24.55</td>
<td>6.31</td>
<td>17.57</td>
<td>2,21</td>
<td>.0001</td>
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</tr>
</tbody>
</table>

*Note*. Cell sample sizes were 10 underweight, 9 average-weight, and 5 overweight subjects.

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weight fluctuations when restraint was used as the covariate. Overweight persons may indeed report greater weight variability than normal-weight persons (Bray, 1976). These reports, however, seem to represent the effects of dieting, which is an activity long favored by the obese. As was the case with free-fatty acids and consummatory responses to preloads, many attributes long considered correlates of obesity are better conceptualized as correlates of dieting, which is more prevalent among the obese (Hibsch & Herman, 1977). Furthermore, CD and WF were both important predictors of weight fluctuations, which indicates a syndrome of restraint that involves both a concern for dieting and weight fluctuations.

If success is measured in terms of weight loss, our findings also suggest that restrained eaters are not particularly successful. Restrained subjects did not lose any weight over the 6-week period nor had they lost any weight at the 6-month follow-up. Why then do dieters diet? It could be that restrained subjects are dieting to maintain weight suppression rather than to lose weight (Lowe, 1984; Lowe & Kleifield, 1988). This proposal did not receive support from this study, because the WSI was unrelated to weight variability and restrained subjects reported being significantly above their ideal weight and had higher Drive for Thinness and Body Dissatisfaction scores (which signify that they would like to lose weight rather than maintain current weight; see Table 1). However, because this study was not set up to test issues of weight maintenance specifically, further research that examines the extent to which persons diet to avoid weight gain rather than to lose weight is necessary. Alternatively, it may be that although dieters start out with the intention of losing weight, their eating follows a cycle of caloric restriction and occasional (or not so occasional) excessive eating that cancels out the restriction. Thus, restrained eating patterns may represent an abnormal intake style rather than an abnormal intake amount. The existence of such a cycle is supported by our finding that restrained subjects showed greater weight variability than unrestrained subjects, given that such an intake pattern may lead to frequent changes—both losses and gains—in weight. However, further work, including assessing actual food intake, is necessary to delineate the role of various dieting motivations.

One limitation of our study is that few subjects were very heavy. It could be argued that extremely obese persons will show greater variability due to the law of initial values. That is, if everyone fluctuates 2% per week, then the heavier a person is, the greater the absolute weight fluctuation. Although this is possible, there was no evidence of percentage overweight across a wide range of body weights (when restraint was partialled out), and therefore it is unlikely that increasing the range will increase such a (nonexistent) effect. There is no evidence herein that heavier subjects were more likely to have greater weight fluctuations, independent of restraint, nor are there any such data in the literature. Nonetheless, it is important that future studies examine this question more thoroughly in order to determine weight fluctuations across a wider weight span.

An additional and serious limitation to this study is the relatively small sample size that was used. This may have rendered the weight loss findings questionable because of low power to detect between group differences. The highest priority for restraint research must be to examine weight loss in larger groups of dieters over time. As well, although we took efforts to conceal the true purposes of the study, we have no data that assess whether subjects believed our cover story that the experiment was concerned with health regulation. Finally, only female subjects were included, and it is unknown whether these results may generalize to male subjects. However, researchers in the restraint area have ignored the basic assumptions that underlie the measurement of dieting for too long. It is our hope that our study will motivate researchers to begin to examine the relation between dieting status and actual weight variability, food intake, and weight loss. Clearly, much further work is necessary.

Even though these results provide support for our position on weight variability, we caution against overextending findings that result from the use of statistical control procedures (such as partial correlation), because this can be inappropriate under some circumstances (see Lieberson, 1985, for an excellent analysis of control procedures). Cohen and Cohen (1975) cited an example of inappropriate statistical partialing: "Consider the fact that the difference in mean height between the mountains of the Himalayan and Catskill ranges, adjusting for differences in atmospheric pressure, is zero!" (p. 400). The use of statistical control procedures is inappropriate if the covariate is related in some meaningful way to the explanatory variable; analysis of covariance and partial correlation ought only to be used to reduce noise associated with true nuisance variables (Lieberson, 1985). Researchers have examined the effects of relative weight on variability as if there was no dieting and conversely the effects of restraint on variability as if there was no overweight. In reality, the two go together and attempts to artificially separate them produce psychometric straw men rather than meaningful results. As pointed out by Herman and Polivy (1982), even those studies that have found higher WF scores among obese subjects (Drenowski et al., 1982) have also found greater CD scores among the obese.

The preceding caveats must not obscure the importance of our results. Restrained subjects are apparently expending great effort (both physical and psychological) to restrict food intake, presumably to lose weight (although possibly to avoid gaining weight). These efforts may be for naught, because neither of our small samples of restrained and unrestrained women lost a substantial amount of weight. Why precisely are restrained persons dieting? The answer to this question is not at all clear, and much work remains to be done. Whereas a cycle of repeated diet attempts and failures may lead to aversive consequences, including lowered self-esteem, increased weight fluctuations, weight gain, and hyperemotionality (Heatherton & Baumeister, in press; Heatherton & Polivy, in press; Polivy, Heatherton, & Herman, 1988; Polivy & Herman, 1985, 1987), persons who attempt to lose weight ought to be dissuaded from dieting and encouraged to come to terms with their present—and most likely permanent—appearance (Polivy & Herman, 1987).

References


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