



Published in final edited form as:

Obes Res. 2004 July ; 12(7): 1085–1093. doi:10.1038/oby.2004.136.

Lean and Weight Stable: Behavioral Predictors and Psychological Correlates

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Abstract

Objective—To examine behavioral characteristics associated with being lean and weight stable during adulthood.

Research Methods and Procedures—Participants included 165 white married couples who were part of a larger longitudinal study. Participants' height and weight were measured on three occasions at 2-year intervals. Men and women were classified as being lean and weight stable (the target group) if they had a BMI < 25 at baseline and maintained their weight within 5% of baseline at 2nd and 4th year follow-up. Individuals not fulfilling these criteria were included in the comparison group. Group differences in background characteristics including childhood weight status, BMI at each occasion, dieting history, and mental and physical health history were examined. In addition, multiple measures of dietary intake and physical activity were obtained and used to predict the likelihood of being in the target group.

Results—Men ($N = 22$) and women ($N = 36$) in the target group had lower mean BMI scores at each occasion, were less overweight during childhood, were less likely to have dieted in the past year, and rated themselves as being more healthy than men and women in the comparison group. No differences were identified in mental health. Relative to the comparison group, women in the target group reported higher levels of physical activity and higher levels of physical activity among their spouses, and men in the target group reported healthier dietary patterns.

Discussion—Results from this study suggest that being lean and weight stable in adulthood is linked to childhood weight status in combination with dietary and activity patterns during adulthood.

Keywords

weight change; weight maintenance; dietary intake; physical activity; healthy weight

Introduction

Despite the Healthy People 2010 objectives to lower the prevalence of obesity (1), rates of obesity have continued to increase in the U.S. population in the past decade (2,3). This trend is problematic given the associated health comorbidities (4), the tremendous drain placed on the health care system (5), and the fact that obesity is generally an irreversible disease. With the exception of gastric bypass surgery, efforts to treat obesity are frequently unsuccessful. Although a number of treatment programs report moderate reductions in weight, patients are

generally unable to maintain weight loss for periods longer than a year (6,7). Given the high degree of recidivism among individuals on weight loss programs, it is pertinent to focus research on the prevention of obesity and, in particular, to examine in detail the minority of individuals who are a healthy weight and are weight stable.

Research shows that individuals who are weight stable spend less time sitting (8), consume smaller meals (9), consume less fast food (8), diet less often (10,11), and report lower levels of dietary restraint (10) than individuals who gain weight. Although people who maintain their body weight across time are more likely to be in a healthy weight range than people who gain weight (8,11), the simple classification of weight stability does not exclude individuals who are overweight or obese and, thus, cannot be used exclusively to guide obesity prevention efforts.

To our knowledge, no research has examined behavioral predictors of weight stability among individuals who are normal weight at study onset. This group of individuals can effectively be considered the gold standard against which obesity prevention programs could be designed. Therefore, using a longitudinal sample of 165 white married couples, a target group of men and women who were normal weight at study onset and were weight stable at 2- and 4-year follow-ups was identified; all individuals not fulfilling these criteria were included in the comparison group. Predictors of membership in the target group including physical activity and dietary intake, weight and dieting history, and physical and mental health history were examined. A descriptive analysis of differences in dieting strategies used to lose or maintain body weight for men and women in each group was also performed.

Research Methods and Procedures

Participants

Participants were part of a larger longitudinal study that was designed to examine parental influences on girls' growth and development. The larger study included 192 married couples and their daughters. Families were examined three times across a 5-year period, with 2-year intervals between each measurement occasion. Only couples with complete height and weight data at all times of measurement were included in this study, resulting in a final sample of 165 couples. The mean age at entry into the study was 35.4 (± 4.7) years for women and 37.4 (± 5.4) years for men. Participants were non-Hispanic white and generally well educated, with approximately an equal proportion of families reporting incomes below \$35,000, between \$35,000 and \$50,000, and above \$50,000 at entry into the study.

Recruitment efforts and selection criteria focused on daughters' characteristics because they were the primary participants in the larger longitudinal project. Selection criteria for girls included being at least 5 years old at entry into the study, living with both biological parents, having no severe food allergies or chronic medical problems affecting food intake, and having no dietary restrictions involving animal products. Families were not recruited based on the weight status of any family member. Families were recruited for the study by means of flyers and newspaper advertisements. In addition, families with age-eligible girls within a five-county radius received letters and follow-up phone calls inviting them to participate in the study. Only data for parents are considered in this study.

Procedures

Background Characteristics—Participants completed a background questionnaire that assessed: years of education, combined family income, weekly work hours, general health (on a five-point scale from poor to excellent), highest (nonpregnant) and lowest (excluding illness) adult weight, weight status as a child (i.e., before age 13) (on a five-point scale from very

underweight to very overweight), frequency of dieting in the past year (on a five-point scale from “I haven’t dieted in the past year” to “I am on a diet almost all of the time”), smoking status, and weekly frequency of alcohol consumption. Adult weight fluctuation was calculated as the highest adult weight minus the lowest weight. In addition, participants completed the Center for Epidemiological Studies Depression Scale (12) and the Rosenberg Self-Esteem Scale (13), both of which are widely used measures that are reliable and valid (12–16). Scores on the Center for Epidemiological Studies Depression Scale range from 0 to 60, with higher scores indicating higher levels of depression. Scores on the Rosenberg Self-Esteem Scale range from 0 to 40, with higher scores indicating higher levels of self-esteem.

Weight Status and Classification of the Target and Comparison Groups—At each occasion, height and weight were measured in triplicate, and average height and weight were used to calculate BMI [weight (kilograms)/height (meters)². Men and women were classified as lean and weight stable if they had a BMI < 25 at entry into the study and maintained a body weight within 5% of baseline weight at 2- and 4-year follow-ups. For ease of presentation, this group will be referred to as the target group. Based on this definition, 22% of women and 13% of men were categorized in the target group. All individuals not satisfying these criteria were included in the comparison group.

Physical Activity—Four measures of physical activity were obtained for men and women, including the number of days per week exercised, general inclination toward physical activity, and leisure time and habitual activity. Participants indicated how often they exercised each week using the following three-point scale: 0 (0 times per week); 1 (one to three times per week); or 2 (four or more times per week). General inclination toward activity was assessed using an amended version of the Children’s Physical Activity scale (17). Wording changes were made where necessary to make the scale appropriate for adults (e.g., “I would rather watch TV or play in the house than play outside” was changed to “I would rather watch TV or relax inside than be active outside”). The amended measure displayed good internal consistency ($\alpha = 0.84$ for men and $\alpha = 0.88$ for women) and was negatively correlated with BMI for both men ($r = -0.24, p < 0.01$) and women ($r = -0.45, p < 0.0001$). Scores ranged from 1 to 4, with higher scores indicating a higher inclination to be active.

Habitual physical activity excluding sports was measured using the Baecke Activity Questionnaire (18). This scale examines the extent to which someone does activities including watching television, walking, and cycling during leisure time. Sports participation during leisure time was also assessed using the Baecke Activity Questionnaire. For this scale, participants reported the extent to which they participated in sports and sweated during leisure time. In addition, participants listed the two physical activities they did most often (e.g., walking, gardening, weight lifting) and indicated how many hours per week and months per year they performed each activity. Metabolic equivalent scores were created for the two activities using criteria outlined by Ainsworth et al. (19), and activity scores were calculated using the following equation: metabolic equivalent \times days/week \times months/year. The scores for the items for the sport during leisure scale were then combined as outlined by Baecke (18). Scores for the sports during leisure time and the sports participation during leisure time scales ranged from 1 to 5, with higher scores indicating higher levels of activity. Previous research supports the test-retest reliability of the Baecke Activity Questionnaire (18). In addition, scores on the scale are correlated with physical activity assessed using accelerometry (20) and doubly labeled water (21).

Dietary Intake and Dietary Patterns—Participants’ “usual” dietary intake and dietary patterns were assessed using the semiquantitative Food Frequency Questionnaire (FFQ)¹ developed by Kristal et al. (22). The FFQ is a standardized, comprehensive list of foods used for assessing dietary intake. Participants were asked to indicate the frequency with which they

consumed each food within the past 3 months and the approximate serving size. Previous research supports the reliability and validity of the FFQ (23). Participants' daily energy and fat (grams) intake were calculated. Energy intake was adjusted for body weight by regressing energy intake onto weight in kilograms and saving the residuals (24); the residuals were used in the analyses. Grams of fat were converted into percentage fat intake to take into consideration total energy consumed. Adjusted and unadjusted scores for energy and fat intake are reported. In addition, as part of the FFQ, participants indicated how frequently they ate a serving of fruit using a scale ranging from less than one serving per week to five+ servings per day. The same question was asked for vegetables. These scores were combined and converted to indicate the number of servings of fruits and vegetables consumed per year.

Dietary restraint (i.e., cognitive control of eating), and dietary disinhibition (i.e., out of control eating) were assessed using the Three-Factor Eating Questionnaire (25). Numerous studies provide support for the reliability and validity of the Three-Factor Eating Questionnaire (25–28). Dietary restraint and disinhibition provided additional measures of participants' dietary patterns. Scores for dietary restraint ranged from 0 to 23 and scores for disinhibition ranged from 0 to 16, with higher scores indicating higher values for the construct.

An amended version of the Weight Loss Behavior Scale (29) was used to examine strategies adopted to maintain or lose weight during adulthood. The scale includes a checklist of healthy (e.g., exercising more, eating smaller portions) and unhealthy (e.g., using diet pills or laxatives) strategies. Participants were asked if they had never, sometimes, or always used the strategy for weight loss or maintenance. Responses for sometimes and always were collapsed to form a two-point (yes/no) scale.

Statistical Analyses

Analyses were conducted using SAS version 8.01 (SAS Institute Inc., Cary, NC). Education, family income, and weekly work hours were examined as potential confounding variables. Although no group differences were found for family income and weekly work hours, men and women in the target group were more educated than men and women in the comparison group. Therefore, education was entered as a covariate in all analyses that follow. All analyses were run separately for men and women.

Initial analyses used one-way ANOVA to examine differences in background characteristics including BMI, weight and diet history, and physical and mental health history for the target and comparison groups (see Table 1). The association between smoking status and group status was assessed using χ^2 analysis. Differences in each individual measure of dietary intake and physical activity were also examined using one-way ANOVA (see Table 2).

For the primary analysis of interest, childhood weight status and measures of dietary intake and physical activity for each participant and their spouse were entered into a hierarchical logistic regression model to predict the likelihood of being classified in the target group (see Table 3). The dietary intake variables entered into the analysis included energy intake adjusted for weight, percentage of energy from dietary fat, and fruit and vegetable servings per year. The physical activity variables that were entered included days per week exercised, inclination toward physical activity, and the two measures from the Baecke Activity Questionnaire (sports during leisure time and habitual activity excluding sports). The two scores from the Baecke questionnaire were combined before being entered into the analysis to reduce the number of degrees of freedom. The variables were entered in the following order: 1) education, 2) childhood weight status, 3) dietary intake, 4) physical activity, 5) spouse's dietary intake, and

¹Nonstandard abbreviations: FFQ, Food Frequency Questionnaire.

6) spouse's physical activity. For steps 3 to 6, all indicators for the construct were entered simultaneously into the analysis. The contribution of each group of variables was determined by examining the change in χ^2 for the model at each step.

For the final analyses, differences in the proportion of individuals in the target and comparison groups who reported particular dieting strategies for the purpose of weight loss or maintenance were assessed by converting the difference in the proportions into z scores (see Table 4). A two-tailed test was used to test whether the difference in the proportion was significantly different than zero ($z \geq 1.96$; $p < 0.05$).

Results

As shown in Table 1, men and women in the target group were substantially leaner at all times of measurement, reported a lower magnitude of weight fluctuation across adulthood, and were leaner during childhood than individuals in the comparison group. In addition, women in the target group reported a lower frequency of dieting in the past year than women in the comparison group. All men and women in the target group were lean and weight stable. In contrast, men and women in the comparison group showed the following weight change patterns: 15% of women and 8% of men lost (and did not regain) >5% of their baseline body weight across the two follow-up visits, 53% of women and 43% of men gained (and did not lose again) >5% of their baseline body weight across the two follow-up visits, 19% of women and 45% of men maintained their weight within 5% of baseline (although they were overweight at baseline), and 13% of women and 4% of men gained and lost >5% of their baseline weight across measurement occasions. Thus, 72% of women and 88% of men in the comparison group were gaining weight or were overweight and weight stable. Finally, few differences were noted in physical and mental health, with the exception of perceived general health. Men and women in the target group perceived themselves to be healthier than their counterparts; this relationship was significant for men and was marginally significant for women.

With respect to differences in physical activity and dietary intake, women in the target group reported lower caloric intake, lower dietary restraint, and lower dietary disinhibition than women in the comparison group (Table 2). In addition, women in the target group reported a stronger inclination to be active and higher levels of sports participation during leisure time. Men in the target group reported a lower percentage intake from fat, a greater number of servings of fruits and vegetables, and lower levels of dietary restraint and disinhibition than men in the comparison group. No group differences in physical activity were noted for men.

Childhood weight status and measures of dietary intake and physical activity for each individual and his or her spouse were then collectively examined as predictors of the likelihood of being in the target group (see Table 3). Results showed that, for women, lower weight status during childhood and higher levels of physical activity, including their own and their husbands' physical activity, were associated with a significantly greater likelihood of being classified in the target group. For men, lower weight status during childhood and more healthful dietary patterns significantly increased the likelihood of being classified in the target group.

Finally, in a descriptive analysis, group differences in dieting strategies used for weight loss or maintenance were examined (see Table 4). Virtually all men and women in the target and comparison groups reported using at least one of the strategies listed to lose or maintain weight during adulthood, the majority of men and women reported adopting healthy dieting strategies, and few adopted unhealthy dieting strategies. One exception was for skipping meals. Over one-half of men and women in the comparison group reported skipping meals. With respect to differences for the target and comparison groups, women in the target group were significantly less likely to report eliminating sweets, reducing calories, or reducing the amount of food

consumed to maintain or lose weight than women in the comparison group. No differences were noted for unhealthy strategies. In addition, men in the target group reported adopting fewer healthy (increasing exercise, eating more fruits and vegetables, eliminating sweets, reducing calories, reducing amount of food, eating less fat, eating fewer high-carbohydrate foods) and unhealthy (skipping meals, fasting) strategies than men in the comparison group.

Discussion

This study examined behavioral predictors and psychological and health correlates of being lean and weight stable over a 4-year period. Very few men (13%) and women (22%) in this sample were normal weight at the initiation of this study and maintained their body weight within 5% of baseline at each 2-year follow-up assessment. This pattern is consistent with research indicating that the majority of Americans are overweight or obese (2) and that weight gain during adulthood has become normative (10). Women who were lean and weight stable (i.e., the target group) consumed fewer calories, reported lower levels of dietary restraint and disinhibited eating, and were more inclined to be active and to participate in sports during leisure time than women who did not meet the criteria to be classified in the target group (i.e., who were overweight at baseline and/or did not maintain a stable body weight). Men who were lean and weight stable consumed diets lower in fat, ate more fruits and vegetables, and reported lower levels of dietary restraint and disinhibited eating than men in the comparison group. In addition, men and women who were lean and weight stable reported higher levels of general health but did not report differences in other indicators of health (e.g., smoking, alcohol consumption, depression, self-esteem). Finally, when examining all measures of dietary intake and physical activity simultaneously in the logistic regression analysis, results showed that women who were leaner during childhood, who were more active, and who had husbands who were more active had a greater likelihood of being classified as lean and weight stable. Men were more likely to be lean and weight stable if they were leaner during childhood and if they consumed healthier diets.

Findings from the present study suggest that a healthy stable body weight is a characteristic that may begin in childhood. That is, in addition to being substantially leaner at all times of assessment, men and women in the target group reported that they were leaner during childhood and reported lower discrepancies between their highest and lowest adult weights than individuals in the comparison group. Their long-term weight maintenance pattern suggests that men and women in the target group had established lifestyle patterns that prevented weight gain during adulthood. Differences in childhood weight status suggest that this life-style pattern might begin during childhood, suggesting that prevention and intervention efforts should begin early in life. Alternatively, lower reported childhood weight status may reflect a genetic predisposition, or a combination of the early environment and a genetic predisposition, to be lean. Given the retrospective nature of the reports of childhood weight status, additional research using a prospective longitudinal design is needed to substantiate these claims.

Although popular belief holds that some people can eat what they like, never exercise, and still maintain a healthy weight, that did not seem to be the pattern in this study. Individuals in the target group reported significantly lower energy intake (women), lower fat intake (men), higher fruit and vegetable intake (men), and higher levels of physical activity (women) than their counterparts in the comparison group. Men and women in the target group, however, did not report regular dieting or high levels of dietary restraint. In addition, individuals in the target group were less likely to report healthy (men and women) or unhealthy (men) dieting strategies to lose or maintain weight than individuals in the comparison group. Results for analyses assessing differences in dieting strategies, however, need to be interpreted cautiously given the number of tests performed and the small number of men and women in the target group. In summary, these findings collectively illustrate that more healthful diets and higher levels of

physical activity among lean and weight-stable men and women reflect maintainable lifestyle behaviors rather than conscious, extreme efforts to resist weight gain. Results also suggest that support from a spouse, particularly among women, may aid efforts to maintain a healthy lifestyle.

Sex differences in fulfilling criteria for assignment to the target group and factors associated with group membership could not be examined due to the low number of lean and weight-stable individuals in this sample. However, on a descriptive level, it is interesting to note that a smaller proportion of men (13%) relative to women (22%) was classified in the target group. This difference may be explained by the necessity that healthy maintainers have a BMI below 25 at study onset. At any given BMI, women have higher levels of body fat than men (30, 31). Therefore, a BMI cut-off of 25 is a more stringent criterion for men than for women. As a result, men are less likely to have a BMI below 25, which is reflected in gender differences in national prevalence rates for overweight (2). Differences in the number of men and women in the target group might also be explained by the tendency for women to use more strategies to maintain weight than men, as shown in Table 4. Examining possible gender differences in the likelihood of maintaining a healthy weight and in strategies used to maintain weight is an interesting possibility for future research.

Individuals who were lean and weight stable were the focal group of this study and were compared with all individuals who were either overweight at study onset or who did not maintain a stable body weight across the course of the study. The classification criteria for membership in the target and comparison groups were chosen for a number of reasons. The primary motivation was that the results be informative to obesity prevention. That is, in a society in which the majority of individuals are overweight or are gaining weight, it is informative to examine in detail the small minority of individuals who are lean and weight stable and have resisted environmental and lifestyle factors that promote passive and gradual weight gain. To our knowledge, research has rarely examined in detail behavioral characteristics of this group of individuals. People who moved from the status of overweight to normal weight across the course of the study were not included in the target group because weight loss and the maintenance of weight loss are challenging, and the majority of individuals do not achieve this goal; in addition, these individuals are more informative for the design of treatment rather than prevention programs. Finally, individuals who were lean at baseline but showed large weight fluctuations including weight gain or loss were not included in the target group because research suggests that weight cycling is linked with binge eating (32) and adverse psychological (33) and health (34,35) outcomes. Although it has been argued that there are methodological limitations with research on the outcomes of weight fluctuation (36), researchers and practitioners recommend the maintenance of a healthy weight while avoiding large degrees of weight fluctuation (36,37).

This study is one of the first to examine in detail behavioral factors among middle-aged men and women that are associated with being lean and weight stable. Results inform obesity prevention efforts and indicate that being a healthy weight and avoiding large weight fluctuations during adulthood are linked with patterns of healthy eating and regular physical activity, lower dietary restraint, and less reliance on dieting attempts. Results from this study also suggest that these lifestyle behavioral patterns may emerge during childhood and that intervention efforts should focus on this age period. Although this research is informative, it is applicable only to married white men and women who are relatively well educated. Future research can build on this study by examining similar associations among more diverse samples including ethnic minorities, low-income families, and adults who are not married. In addition, future research could examine the impact of gender, childhood weight status, and support from a spouse on the likelihood of being lean and weight stable during adulthood. Given the expense

and poor success rate involved in the treatment of obesity, a greater emphasis on research directed at the prevention of obesity may be time and research dollars that are well spent.

Acknowledgements

This research was supported by NIH Grant NIH HD 32973.

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Table 1
Differences in background characteristics for the target and comparison groups

	Target group	Comparison group	<i>p</i> value
Women	<i>N</i> = 36	<i>N</i> = 129	
Weight status and weight history			
BMI (T1)	21.4 (1.3)	28.1 (6.2)	<0.001
BMI (T2)	21.6 (1.4)	28.8 (6.3)	<0.001
BMI (T3)	21.7 (1.5)	29.4 (6.1)	<0.001
Highest – lowest adult weight (lb)	19.2 (7.6)	48.3 (30.4)	<0.001
Childhood weight status [*]	2.6 (0.5)	2.9 (0.6)	<0.01
How often dieted in past year [†]	.4 (0.6)	1.3 (1.3)	<0.001
Physical and mental health			
General health [‡]	3.9 (0.9)	3.5 (0.8)	<0.10
Smoke cigarettes (%)	9	9	NS
Frequency of drinking [§]	1.2 (0.7)	1.0 (0.8)	NS
Depression	7.7 (6.5)	9.9 (7.6)	NS
Self-esteem	34.1 (4.4)	32.9 (4.6)	NS
Men	<i>N</i> = 22	<i>N</i> = 143	
Weight status and weight history			
BMI (T1)	23.6 (1.0)	28.6 (3.9)	<0.0001
BMI (T2)	23.9 (1.3)	29.6 (4.3)	<0.0001
BMI (T3)	23.7 (1.2)	29.6 (4.2)	<0.0001
Highest – lowest adult weight (lb)	20.3 (15.5)	38.7 (18.6)	<0.001
Childhood weight status [*]	2.4 (0.6)	2.9 (0.7)	<0.01
How often dieted in past year [†]	0.3 (0.9)	0.5 (0.9)	NS
Physical and mental health			
General health [‡]	4.1 (0.6)	3.5 (0.8)	<0.01
Smoke cigarettes	9	17	NS
Frequency of drinking [§]	1.2 (0.8)	1.4 (0.7)	NS
Depression	10.1 (7.5)	8.3 (6.1)	NS
Self-esteem	33.3 (3.6)	33.7 (4.4)	NS

The target group is individuals who had a BMI < 25 at study onset and stayed within 5% of baseline weight at 2- and 4-year follow-ups. Comparison group, individuals not fulfilling these criteria.

All analyses control for years of education. T1, T2, and T3, times 1, 2, and 3, respectively. NS, not significant.

^{*} Scale range: 1 (very underweight) to 5 (very overweight).

[†] Scale range: 0 (I haven't dieted in the past year) to 4 (I am on a diet almost all the time).

[‡] Scale range: 1 (poor) to 5 (excellent).

[§] Scale range: 0 (don't drink), 1 (less than one drink per week), and 2 (more than one drink per week).

Table 2
Differences in measures of physical activity and dietary intake for the target and comparison groups

	Target group	Comparison group	<i>p</i> value
Women	<i>N</i> = 36	<i>N</i> = 129	
Dietary intake and dietary patterns			
Calories adjusted for weight [*]	- 115 (531)	9 (703)	NS
Calories unadjusted for weight	1645 (527)	1890 (710)	<0.05
Fat intake (% of calories)	36.9 (6.0)	35.1 (6.9)	NS
Fat intake (g)	68.0 (27.6)	74.1 (34.6)	NS
Fruit and vegetable servings/year	690 (363)	760 (506)	NS
Dietary disinhibition [†]	3.8 (2.3)	7.9 (3.7)	<0.001
Dietary restraint [‡]	6.8 (5.7)	9.5 (5.5)	<0.01
Physical activity			
Days per week exercise	1.4 (0.7)	1.2 (0.6)	NS
Inclination toward activity [§]	3.0 (0.5)	2.7 (0.5)	<0.01
Sport during leisure time [¶]	2.4 (0.7)	2.1 (0.7)	<0.05
Habitual activity excluding sport [¶]	2.9 (0.6)	2.8 (0.6)	NS
Men	<i>N</i> = 22	<i>N</i> = 143	
Dietary intake and dietary patterns			
Calories adjusted for weight [*]	159 (875)	- 35 (642)	NS
Calories unadjusted for weight	2239 (875)	2048 (642)	NS
Fat intake (% of calories)	31.4 (6.6)	36.2 (6.8)	<0.01
Fat intake (g)	79.9 (38.5)	82.9 (31.4)	NS
Fruit and vegetable servings per year	835 (587)	538 (409)	<0.05
Dietary disinhibition [†]	4.3 (1.9)	4.7 (2.7)	<0.05
Dietary restraint [‡]	4.1 (3.3)	6.3 (4.6)	<0.01
Physical activity			
Days per week exercise	1.4 (0.6)	1.1 (0.7)	NS
Inclination toward activity [§]	3.0 (0.4)	3.0 (0.5)	NS
Sport during leisure time [¶]	2.7 (0.7)	2.5 (0.7)	NS
Habitual activity excluding sport [¶]	2.9 (0.6)	2.6 (0.5)	<0.10

All analyses control for years of education. NS, not significant.

* Negative values indicate energy intake levels lower than expected for body weight. Positive values indicate energy intake levels higher than expected for body weight.

[†] Scale range: 1 (low disinhibition) to 16 (high disinhibition).

[‡] Scale range: 0 (low restraint) to 23 (high restraint).

[§] Scale range: 1 (low inclination) to 4 (high inclination).

[¶] Scale range: 1 (low activity) to 5 (high activity).

Table 3
Hierarchical logistic regression predicting the likelihood of being in the target group

	χ^2 for model	df	$\Delta\chi^2$
Women			
Education	5.7	1	5.7*
Childhood weight status	11.6	2	5.9*
Dietary intake	17.7	5	6.1
Physical activity	30.2	8	12.5 [†]
Spouse's dietary intake	32.1	11	1.9
Spouse's physical activity	42.2	14	10.1 [†]
Men			
Education	3.6	1	4.78*
Childhood weight status	9.0	2	5.41*
Dietary intake	18.3	5	9.29*
Physical activity	21.3	8	3.0
Spouse's dietary intake	22.4	11	1.1
Spouse's physical activity	28.2	14	5.8

Note that χ^2 data are presented rather than odds ratios because the contribution of the group of variables as a whole was of interest, rather than each individual variable. The contribution of all variables to the model is indicated in the χ^2 .

* $p < 0.05$.

[†] $p < 0.01$.

Table 4

Percentage of men and women in the target and comparison groups who reported using each dieting strategy to lose or maintain weight

Strategy	Women		Men	
	Target group	Comparison group	Target group	Comparison group
Ever used a strategy to lose or maintain weight	100	99	82	92
Healthy strategies				
Increase exercise	97	97	59	85
Eat more fruits and vegetables	95	95	59	85
Eat less fat	92	94	55	77
Eliminate snacking	81	92	59	78
Eliminate sweets	91	94	63	78
Reduce calories	69	90	32	68
Reduce amount of food	83	94	41	78
Eat less meat	64	70	27	52
Eat fewer high-carbohydrate foods	31	47	9	43
Unhealthy strategies				
Skip meals	39	53	14	51
Fast	22	17	5	22
Use diet pills	14	26	0	5
Purge	0	5	0	2
Use appetite suppressants	14	26	0	7
Use liquid diets	14	29	0	10
Increase cigarettes smoked	3	7	0	2
Use laxatives	3	5	0	1
Use diuretics	6	9	0	1

Bold font indicates proportions significantly different ($p < 0.05$) for the target and comparison groups. (Analyses were run separately for men and women.)