

Portion Controlled Frozen Meals Improve Diet Quality and Quality of Life During a Weight Loss Intervention

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Background

Obesity is the most prevalent and resistant public health issue in the United States and in many westernized countries. Despite the fact that obesity is considered a condition modifiable by lifestyle, few behavior modification strategies have been proven effective. Self monitoring, consuming a low energy dense diet at the appropriate calorie level, eating a nutrient dense breakfast, limiting screen time, and serving, selecting and consuming smaller portions are the behaviors with the strongest evidence related to body weight.¹ Selecting and consuming smaller portions when eating at home, or in many cases at the workplace, is made easier by selecting prepared frozen meals.

An evidence based review conducted by the 2010 Dietary Guidelines Advisory Committee on the effect of portion size on weight found a positive relationship between controlling portion size and weight loss in adults.^{2,6} Two clinical trials included in the review studied men and women consuming calorie reduced diets either with or without packaged portion-controlled entrees.^{3,4} After eight weeks, the portion-controlled groups experienced greater weight loss (5.6±2.2 vs. 3.6±2.5 kg in women and 7.4±3.1 vs. 5.1±4.0 kg in men, p<0.05) than the self-selected diet groups. In a small case-control study, of all environmental, social and psychological variables measured, only larger meal size was associated with weight gain.⁵

While the efficacy of portion controlled meals for weight loss has been established, the effect of consuming frozen packaged portion-controlled meals on diet quality and life quality has not been reported

Purpose

To examine the effect on diet quality and quality of life of consuming portion-controlled packaged frozen meals during a 30-day weight loss intervention.

Methods

Subjects
 • Group 1 (n=29 females, 7 males) and Group 2 (n=27 females, 5 males) between the ages of 25 and 65 years.

Data Collection
 • During two 30-day interventions, participants were instructed to replace 10 usual meals per week with portion controlled frozen meals (Healthy Choice®, ConAgra Foods, Omaha NE). Group 1 consumed portion controlled frozen meals at 7 dinners and at least 3 lunches/week. Group 2 consumed portion controlled meals at 7 lunches and at least 3 dinners/week. Participants accompanied the meals with two or three food items, such as salad, skim milk and fruit; and were provided with meal patterns and food lists from which to build their remaining meals and snacks. Patterns were designed to provide approximately 1,400 and 1,600 calories per day for women and men, respectively. Participants were encouraged to increase lifestyle activity and walk up to 150 minutes per week. Participants reported to the study facility for weekly weight checks. Anthropometrics, three day food records and SF-36 Quality of Life Questionnaires were completed at baseline and at the end of the 30-day intervention.

Analysis
 • Pre and post intervention data were analyzed using paired sample t-tests.

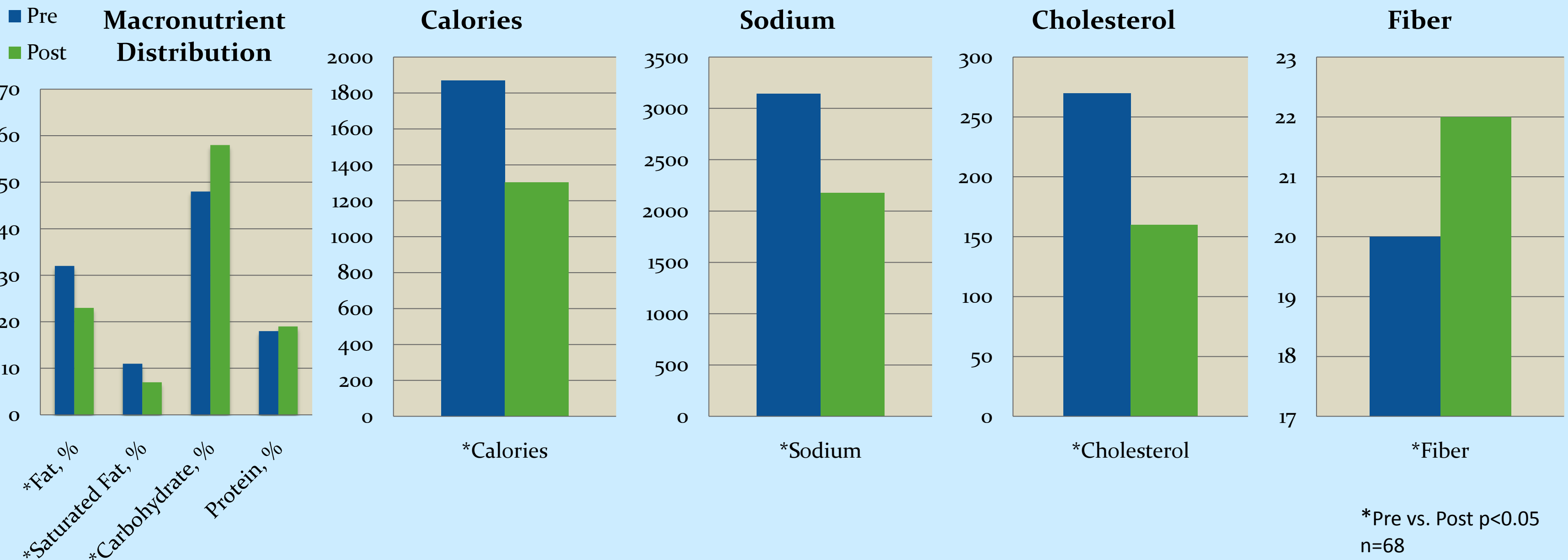
Results

Anthropometric Data

	Group 1			Group 2		
	Baseline	30 Days	Change	Baseline	30 Days	Change
Weight, lb	192.3 ± 23.8	186.4 ± 23.1*	-5.9	188.2±29.5	181.9±27.3*	-6.3
BMI	31.5±3.0	30.7 ± 2.9*	-0.8	31.2±3.3	29.9±3.7*	-1.3
Waist Circumference, cm	92.8 ± 7.6	90.0±7.5*	-2.8	88.6±8.1	86.4±7.9*	-2.2
Body Fat, percent	42.4± 7.0	41.6 ±7.0*	-0.8	43.7±4.8	43.1±5.0*	-0.6
Fat Mass, lb	83.3± 16.6	79.5 ±16.4*	-3.8	79.5±17.0	75.7±16.2*	-3.8

*Pre vs. Post p<0.05

Dietary Intake Data



Quality of Life Data SF-36 Questionnaire

	Group 1			Group 2		
	Baseline	30 Days	Change	Baseline	30 Days	Change
Energy/Fatigue	55.4±19.5	71.7±15.1*	16.3	57.5±20.6	70.8±16.2*	13.3
Emotional Well Being	73.3±20.5	82.7±14.1*	9.4	79.5±14.0	84.5±13.3*	5.0
Health Transition	52.5±18.9	68.3±20.7*	15.8	51.8±21.4	70.5±23.6*	18.7
Physical Health Summary	81.6±12.5	86.9±6.1*	5.3	83.3±12.3	88.1±11.2*	4.8
Mental Health Summary	74.2±17.1	85.7±9.1*	11.5	79.3±14.6	85.2±11.6*	5.9
Physical Health Problems	90.2±15.4	94.8±9.3	4.6	87.7±18.8	95.6±8.7*	7.9
Social Functioning	80.4±25.1	93.1±9.3*	12.7	87.9±19.0	91.2±18.9	3.3
Emotional Health Problems	85.3±19.9	95.3±8.7*	10.0	92.2± 6.2	94.2±9.6	2.0
General Health Perception	74.8±15.2	81.7±10.2*	6.9	77.9±13.7	81.4±14.8	3.5
Physical Functioning	88.1±12.1	90.5±10.9	2.4	86.6±18.7	91.7±15.7	5.1
Pain	73.2±22.9	80.4±15.8	7.2	81.0±18.2	84.0±19.5	3.0

*Pre vs. Post p<0.05

Conclusions

- As expected, participants lost weight, body fat, and reduced waist circumference during two 30 day interventions consisting of replacing ten meals a week with a portion-controlled frozen meal as part of a reduced-calorie eating pattern.
- Results were similar whether participants consumed frozen portion-controlled meals primarily at lunch or primarily at dinner. Both patterns resulted in improvements.
- Dietary improvements included reducing intake of saturated fat by at least 50%, and cholesterol and sodium by at least 30%.
- Fiber intake improved despite calorie reduction.
- After completing the 30-day intervention, participants felt healthier than a year ago and had significantly higher perception of their energy, emotional well-being, and overall physical and mental health.

Implications

Replacing lunch and/or dinner with at least 10 healthy portion-controlled frozen meals per week as part of an energy- reduced eating pattern may help those on a weight loss diet improve their diet quality and quality of life, including perceived improvements in emotional, mental, and physical health. These findings add to the evidence supporting the use of packaged portion-controlled meals as a key strategy for weight loss and obesity prevention.

References

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