COMPARATIVE EFFECTIVENESS OF TWO POPULAR WEIGHT LOSS PROGRAMS IN WOMEN I: BODY COMPOSITION AND RESTING ENERGY EXPENDITURE

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Abstract

Background: A number of commercial diet and exercise programs are promoted to help people lose weight and improve fitness. However, few studies have compared the effects of following different types of exercise and diet interventions on weight loss. **Purpose**: To compare the efficacy of a more structured meal plan based diet intervention and supervised exercise program to a traditional point based diet program with weekly counseling and encouragement to exercise. **Methods:** 51 sedentary women (35±8 yrs, 163±7 cm; 90±14 kg; 47±7% body fat, 34±5 kg/m^2) were randomized to participate in the Curves (C) or Weight Watchers (W) weight loss programs for 16-wks. Participants in the C program were instructed to follow a 1,200 kcal/d diet for 1-week, 1,500 kcal/d diet for 3 weeks, and 2,000 kcals/d diet for 2-weeks consisting of 30% carbohydrate, 45% protein, and 30% fat. Subjects then repeated this diet. Subjects also participated in the Curves circuit style resistance training program 3 days/week and were encouraged to walk at brisk pace for 30-min on non-training days. This program involved performing 30-60 seconds of bi-directional hydraulic-based resistance-exercise on 13 machines interspersed with 30-60 seconds of low-impact callisthenic or Zumba dance exercise. Participants in the W group followed the W point-based diet program, received weekly counseling at a local W facility, and were encouraged to increase physical activity. Dietary records, the International Physical Activity Questionnaire (IPAQ), dual energy X-ray absorptiometer (DEXA) determined body composition, and fasted resting energy expenditure (REE) measurements were obtained at 0, 4, 10, & 16 weeks and analyzed by multivariate analysis of variance (MANOVA) with repeated measures. Data are presented as changes from baseline for the C and W groups, respectively, after 4, 10, and 16 weeks. **Results:** Participants in the W group reported a greater reduction in energy intake (C -270±450, -364±443, -386±480; W -636±510, -610±524, -549±522 kcals/d, p_g=0.008) from baseline levels (C 1,693±430; W 1,954±524 kcals/d) with carbohydrate intake higher (19.6±11 grams/d, 6.0±1.9 %) and protein intake lower (-14.4±4 grams/d, -4.2±1 %) in the W group. Changes in group mean IPAQ walking (241±366 MET-min/wk, p=0.50), moderate PA (177±347 MET-min/wk, p=0.61), vigorous PA (502±122 MET-min/wk, p=0.001), and total PA (925±587 MET-min/wk, p=0.12) were higher in the C group. A significant overall MANOVA time (p=0.001) and diet (p=0.01) effect was seen in body composition results. Univariate analysis revealed that both groups lost a similar amount of weight (C -2.4±2.1, -4.4±3.6, -4.9±4.0; W -2.7±1.3, -5.3±2.4, -6.2±4.1 kg, p=0.31). However, fat mass loss (C -3.9±5.5, -4.6±5.3, -6.4±5.9; W -0.4±5.7, -2.1±6.7, -2.9±7.8 kg, p=0.09) and reductions in percent body fat (C -3.3±5.2, -3.2±4.6, -4.7±5.4; W 0.6±6.7, -0.6±8.3, -1.4±8.1 %, p_g=0.054) tended to be greater in the C group while fat free mass was increased in the C while decreasing in the W group (C 1.5±4.3, 0.5±3.7, 1.3±4.0; W -1.8±5.4, -2.4±5.8, -2.5±5.1 kg, p=0.01). REE values increased over time in both groups and were non-significantly higher in the C group (C 0.9±2.2, 1.4±2.3, 1.3±1.9; W 0.6±2.0, 0.7±2.0, 0.6±2.3 kcals/kg/d, p=0.19). **Conclusion:** Results indicate that 16-wks of participation in the C program that involved a more structured meal plan based diet and supervised exercise program promoted more favorable changes in body composition than participation in the W program that involved adherence to a point based diet, weekly counseling, and encouragement to increase physical activity.

Supported by Curves International, Waco, TX

Rationale

Energy-dense diets and physical inactivity have led to a worldwide epidemic of obesity. The alarming rise in the prevalence of obesity calls for the identification of weight loss programs that utilize proven weight loss strategies to affect changes in body composition and improve markers of fitness and health. Curves International, Inc. and Weight Watchers International, Inc. are two widely recognized commercial companies that provide weight management services that are based on scientifically validated principles. The Curves® Fitness and Weight Management Program is designed to promote and sustain weight loss in women while preserving fat free mass and resting energy expenditure (REE). The program involves cycling between periods of moderate calorie restriction followed by periods of higher caloric intake combined with the Curves 30-minute circuit workout. The Weight Watchers® Momentum™ Program provides an eating plan, which revolves around the POINTS system and includes weekly meetings where weight loss strategies are discussed and weekly weights are attained. Members are also encourages to perform 30 minutes of activity on most days of the week.

Experimental Design

- Subjects were informed as to the experimental procedures and signed informed consent statements in adherence with the human subject guidelines of Texas A&M University.
- 51 sedentary women (35±8 yrs, 163±7 cm; 90±14 kg; 47±7% body fat, 34±5 kg/m^2) participated in this study.
- Subjects were assigned to a Curves group (C, n=24) or a Weight Watchers group (W, n=27).
- Subjects in the C group consumed a 1,200 kcal/d diet for 1-wk, 1,500 kcal/d diet for 3 wks (30:45 CHO:PRO), followed by 2,000-2500 kcals/d for 2-wks (45:30). This diet cycle was repeated for the duration of the study. Subjects in the C group participated in the Curves with Zumba training program 3-d-wk and walked briskly for 30 minutes on non-training days.
- Subjects in the W group followed the Weight Watchers Momentum Program, which consisted of food plans based on a points system and weekly meetings where exercise recommendations, tracking methods, and weight reductions strategies were presented and weekly weights were attained.

Methods & Procedures

- Four day diet inventories were collected and The International Physical Activity Questionnaire (IPAQ) was completed at 0, 4, 10, & 16 wks.
- Body composition was determined at 0, 4, 10, & 16 wks utilizing the Hologic Discovery W QDR series Dual Energy X-ray Absorptiometry (DEXA) system (Watham, MA).
- Resting Energy Expenditure (REE) was assessed at 0, 4, 10, & 16 wks using the Parvo Medics TrueMax 2400 Metabolic Measurement System (Sandy, UT).

Statistical Analysis

Data were analyzed by repeated measures MANOVA using SPSS for Windows version 18 software (Chicago, IL) and are presented as means ± SD changes from baseline.

Results

- Participants in the W group reported a greater reduction in energy intake (C -270±450, -364±443, -386±480; W -636±510, -610±524, -549±522 kcals/d, p_g=0.008) from baseline levels (C 1,693±430; W 1,954±524 kcals/d) with carbohydrate intake higher (19.6±11 grams/d, 6.0±1.9 %) and protein intake lower (-14.4±4 grams/d, -4.2±1 %) in the W group.
- Changes in group mean IPAQ walking (241±366 MET-min/wk, p=0.50), moderate PA (177±347 MET-min/wk, p=0.61), vigorous PA (502±122 MET-min/wk, p=0.001), and total PA (925±587 MET-min/wk, p=0.12) were higher in the C group.
- Both groups lost a similar amount of weight (C -2.4±2.1, -4.4±3.6, -4.9±4.0; W -2.7±1.3, -5.3±2.4, -6.2±4.1 kg, p=0.31). However, fat mass loss (C -3.9±5.5, -4.6±5.3, -6.4±5.9; W -0.4±5.7, -2.1±6.7, -2.9±7.8 kg, p=0.09) and reductions in percent body fat (C 3.3±5.2, -3.2±4.6, -4.7±5.4; W 0.6±6.7, -0.6±8.3, -1.4±8.1 %, p_g=0.054) tended to be greater in the C group while fat free mass was increased in the C while decreasing in the W group (C 1.5±4.3, 0.5±3.7, 1.3±4.0; W -1.8±5.4, -2.4±5.8, -2.5±5.1 kg, p=0.01).
- REE values increased over time in both groups and were non-significantly higher in the C group (C 0.9±2.2, 1.4±2.3, 1.3±1.9; W 0.6±2.0, 0.7±2.0, 0.6±2.3 kcals/kg/d, p=0.19).

Conclusions

16-wks of participation in both the Curves Fitness and Weight Management promoted more favorable changes in body composition than participation and the Weight Watchers® Momentum program

Acknowledgements & Funding

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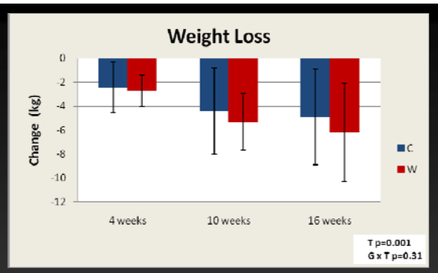

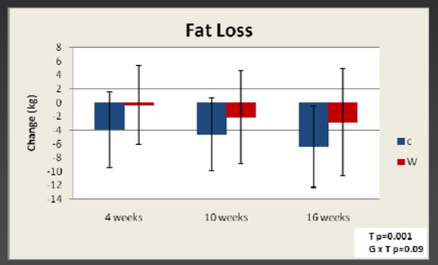

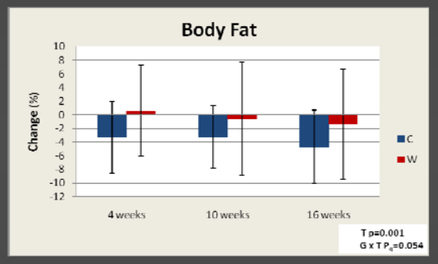

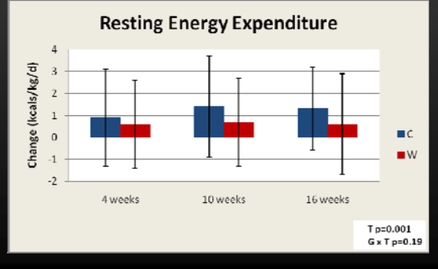

COMPARATIVE EFFECTIVENESS OF TWO POPULAR WEIGHT LOSS PROGRAMS IN WOMEN II: METABOLIC MARKERS

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Abstract

51 sedentary women (35±8 yrs, 163±7 cm; 90±14 kg; 47±7% body fat, 34±5 kg/m^2) were randomized to participate in the Curves (C) or Weight Watchers (W) weight loss programs for 16-wks. Participants in the C program were instructed to follow a 1,200 kcal/d diet for 1-week, 1,500 kcal/d diet for 3 weeks, and 2,000 kcals/d diet for 2-weeks consisting of 30% carbohydrate, 45% protein, and 30% fat. C group subjects then repeated this diet. The C group also participated in the Curves circuit style resistance training program 3 days/week and were encouraged to walk at brisk pace for 30-min on non-training days. This program involved performing 30-60 seconds of bi-directional hydraulic-based resistance-exercise on 13 machines interspersed with 30-60 seconds of low-impact callisthenic or Zumba dance exercise. Participants in the W group followed the W point-based diet program, received weekly counseling at a local W facility, and were encouraged to increase physical activity. Fasting blood samples were obtained at 0, 4, 10, & 16 wks and analyzed by multivariate analysis of variance (MANOVA) with repeated measures for changes in triglycerides (TG), total cholesterol (CHL), low density lipoprotein cholesterol (LDL-c), high density lipoprotein cholesterol (HDL-c), the CHL:HDL-C ratio, and blood glucose. Data are presented as percent changes from baseline for the C and W groups, respectively at 4, 10, and 16 weeks.

Supported in part by Curves International Inc. Waco, TX

Rationale

A number of commercial diet and exercise programs are promoted to help people lose weight and improve fitness. However, few studies have compared the effects of following different types of exercise and diet interventions on weight loss. The purpose of this study was to compare the efficacy of a more structured meal plan based diet intervention and supervised exercise program that included resistance-exercise, to a traditional point based diet program with weekly counseling and encouragement to exercise.

Experimental Design

Subjects

- Subjects were informed as to the experimental procedures and signed informed consent statements in adherence with the human subject guidelines of Texas A&M University.
- 51 sedentary women (35±8 yrs, 163±7 cm; 90±14 kg; 47±7% body fat, 34±5 kg/m^2) were randomized to participate in the Curves (C) or Weight Watchers (W) weight loss programs for 16-wks.

Diet Protocol

- Based on baseline testing, subjects were assigned to one of two groups:
  - Curves (C): 1200 kcal/d x 1 wk; 1500 kcal/d x 3 wks; 2000 kcal/d x 2 wks. Dietary macronutrient content as follows: 30% CHO, 45% protein, 25% fat. The C group repeated this diet cycle throughout the 16 week study.
  - Weight Watchers (W): followed the points based diet program, and received weekly counseling at a local W facility.

Training/Exercise

- Subjects in the C group participated (3-d/wk) in a supervised 30 min circuit resistance training (30-60 seconds/station on each of 13 stations) program utilizing bi-directional hydraulic-based equipment interspersed with low impact calisthenic or Zumba dance exercise, and encouraged to walk at a brisk pace for 30-min on non-training days for the entire duration of the study.
- Subjects in the W group were encouraged to increase physical activity.

Methods & Procedures

- Fasting blood samples were obtained at 0, 4, 10, & 16 wks for analysis of Triglycerides (TG), total cholesterol (CHL), low density lipoprotein cholesterol (LDL-c), high density lipoprotein cholesterol (HDL-c), the CHL:HDL-C ratio, and blood glucose.

Statistical Analysis

- Data were analyzed by MANOVA with repeated measures using SPSS for Windows version 18 software (Chicago, IL) and are presented as means ± SD change from baseline for each group at 4, 10, and16 weeks.

Results

- MANOVA analysis of fasting lipids data revealed an overall Wilks' Lamda significant time (p=0.001) and diet (p=0.03) effect with no significant time x diet effect (p=0.19). No significant time (p=0.72) or time x diet (p=0.36) effects were seen in changes in TG levels (C -8.0±26, -11.7±18,-2.3±26; W 4.0± 25, 5.0±32, 7.8±5 %); however, an effect of diet was seen with the C group experiencing a greater reduction in TG (p=0.06). CHL levels (p=0.001) and LDL-c levels (p=0.01) decreased in both groups over time with no differences observed between groups in changes in CHL (C -6.1±11.0, -37.9±25.8, -2.3±9.5; W -6.8±9.4, -34.2±27.4, -6.3±13.0 %, p=0.53) or LDL-c (C -6.9±17.3, -2.7±13.6, -4.6±17.2; W -5.6±14.5, -2.8±19.7, -11.4±15.9 %, p=0.16). Changes in HDL-c (C -2.1±12.5, 3.0±12.3, 5.9±18.3; W -9.5±11.5, -9.5±12.7, -1.6±14.6 %, p_q=0.001) and the CHL:HDL-c ratio (C -1.8±13.1, -4.0±10.1, -3.8±12.2; W 3.4±13.4, 5.3±12.5, -3.4±14.2 %, p_q=0.009) were greater in the C group. No significant time (p=0.38) or time by diet (p=0.31) effects were seen in changes in blood glucose (C -1.9±13, -0.5±12,-3.6±9; W 1.0±12, -1.0±11, 0.9±12 %)..

Conclusions

- Results indicate that 16-wks of participation in the C and W programs promoted improvements in CHL and LDL-c. However, adherence to a more structured meal plan based diet along with a supervised exercise program promoted more favorable changes in TG, HDL-c and the CHL:HDL-c ratio.

Funding

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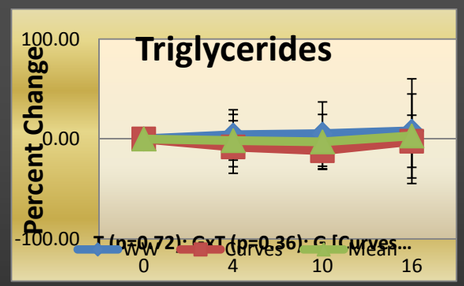

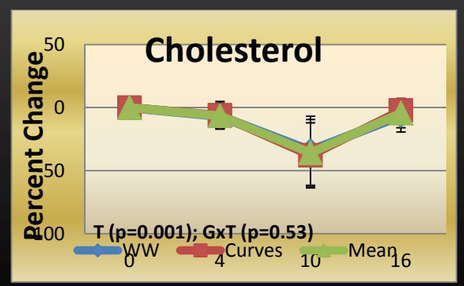

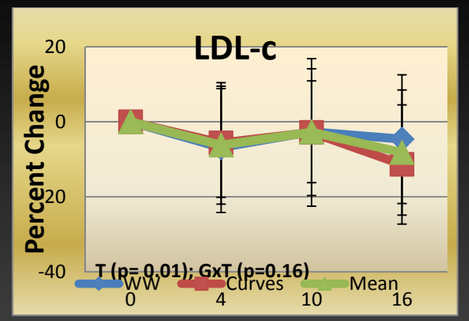

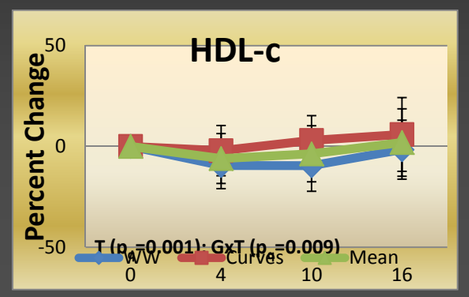

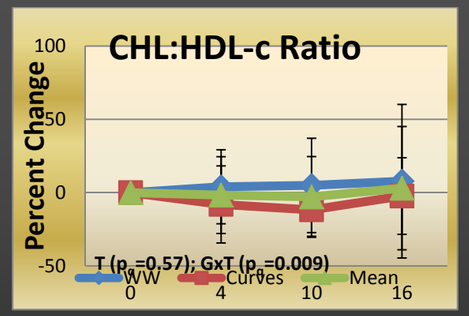

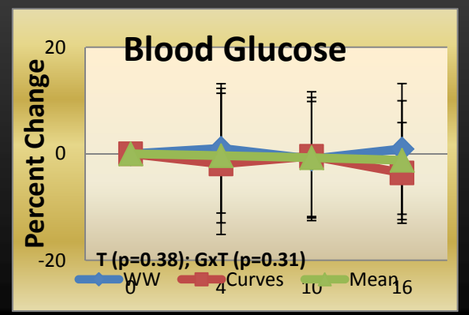

COMPARATIVE EFFECTIVENESS OF TWO POPULAR WEIGHT LOSS PROGRAMS IN WOMEN III: HEALTH AND FITNESS MARKERS

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Exercise • Nutrition • Health • Performance
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Abstract

BACKGROUND: A number of commercial diet and exercise programs are promoted to help people lose weight and improve fitness. However, few studies have compared the effects of following different types of exercise and diet interventions on weight loss. **PURPOSE**: The purpose of this study was to compare the efficacy of a more structured meal plan based diet intervention and supervised exercise program that included resistance-exercise to a traditional point based diet program with weekly counseling and encouragement to exercise. **METHODS**: 51 sedentary women (35±8 yrs, 163±7 cm; 90±14 kg; 47±7% body fat, 34±5 kg/m^2) were randomized to participate in the Curves (C) or Weight Watchers (W) weight loss programs for 16-wks. Participants in the C program were instructed to follow a 1,200 kcal/d diet for 1-week, 1,500 kcal/d diet for 3 weeks, and 2,000 kcals/d diet for 2-weeks consisting of 30% carbohydrate, 45% protein, and 30% fat. Subjects then repeated this diet. Subjects also participated in the Curves circuit style resistance training program 3 days/week and were encouraged to walk at brisk pace for 30-min on non-training days. This program involved performing 30-60 seconds of bi-directional hydraulic-based resistance-exercise on 13 machines interspersed with 30-60 seconds of low-impact callisthenic or Zumba dance exercise. Participants in the W group followed the W point-based diet program, received weekly counseling at a local W facility, and were encouraged to increase physical activity. BMI, waist and hip circumference; as well as changes in resting heart rate (RHR) and blood pressure were obtained at 0, 4, 10, & 16 wks and analyzed by multivariate analysis of variance (MANOVA) with repeated measures for changes. Measurements of strength and endurance were obtained at 0 and 16 weeks. **RESULTS:** MANOVA analysis of anthropometry data revealed an overall Wilks' Lamda significant time (p=0.001) and diet (p=0.05) effect with no significant time x diet effect (p=0.29). After 16 weeks both groups decreased BMI (C -2.5±1.9, -4.6±3.2, -5.1±3.7; W -3.1±1.5, -6.0±2.7, -7.1±4.7 %; p=0.10), waist circumference(C -2.8±3.7, -5.4±5.2, -6.2±5.1; W -1.1±5.6, -4.2±6.0, -5.9±5.5 %; p_q=0.21) and hip circumference (C -1.7±2.1, -4.1±3.4, -4.7±4.0; W -1.5±3.3, -4.3±3.2, -6.2±4.1 %; p_q=0.15) over time; with no differences seen between groups. MANOVA analysis of RHR and BP data revealed an overall Wilks' Lambda significant time (p=0.008) effect with no diet (p=0.71) or time x diet (0.11) effect. Both groups significantly decreased RHR (C -5.6±13.2, -7.4±13.8, -0.7±11.3; W -5.9±18.1, 0.2±20.9, -0.9±20.9 %; p_q=0.22), systolic BP (C -2.4±6.5, -2.9±9.3, -3.8±8.8; W -4.3±8.6, -3.5±10.1, -4.1±7.5 %; p_q=0.53), and diastolic BP (C -5.1±10.4, -1.5±13.0, -1.6±13.0; W -5.1±11.4, -6.4±11.6, -5.7±10.0 %; p=0.11) over time; with no differences seen between groups. MANOVA analysis of strength and strength endurance revealed a significant difference between groups (p=0.008) participants in C improved their leg press 1RM (C 5.6±16; W 0.0±19 %), bench press 1RM (C 4.5±15; W -0.9±10 %), leg press endurance (C 22.3±85; W 7.1±54 %), and bench press endurance (C 45.4±97; W -10.5±39 %) to a greater degree. No significant difference were seen in changes in peak oxygen uptake (C 11.1±11.5; W 9.3±8.5 %; p=0.52). **CONCLUSION:** Results indicate that participation in C and W programs improved several markers of health and fitness. However, adherence to a more structured meal plan based diet combined with a supervised exercise program promoted more favorable changes in strength and endurance.

Supported by Curves International, Waco, TX

Rationale

The purpose of this study was to determine the effects of following either the Curves® Fitness and Weight Management Plan or the Weight Watchers® Momentum™ Plan for 16 weeks on markers of fitness and health.

Experimental Design

- Subjects were informed as to the experimental procedures and signed informed consent statements in adherence with the human subject guidelines of Texas A&M University.
- 51 sedentary women (35±8 yrs, 163±7 cm; 90±14 kg; 47±7% body fat, 34±5 kg/m^2) participated in this study.
- Subjects in the C group consumed a 1,200 kcal/d diet for 1-wk followed by a 1,500 kcal/d diet for 3 wks (30:45 CHO:PRO). Subjects then ingested 2,000-2500 kcals/d for 2-wks (45:30). This diet cycle was repeated for the duration of the study. Subjects in the C group participated in the Curves with Zumba program 3-d-wk. Subjects participated in Curves Zumba classes 2-d-wk and performed circuit training interspersed with callisthenic exercises 1-d-wk for the entire duration of the study.
- Subjects in the W group followed the Weight Watchers Momentum Program, which consisted of food plans based on a points system and weekly meetings where exercise recommendations, tracking methods, and weight reductions strategies were presented and weekly weights were attained.

Methods & Procedures

- BMI, Hip & Waist circumference, HR, SBP & DPB were measured at 0, 4, 10, & 16 wks utilizing standard procedures.
- VO2 peak and upper/lower body 1RM strength & muscular endurance (70% 1RM) were assessed at 0 & 16 wks.

Statistical Analysis

Data were analyzed by repeated measures MANOVA using SPSS for Windows version 18 software (Chicago, IL) and are presented as means ± SD changes from baseline.

Results

- Subjects in both groups decreased BMI (C -2.5±1.9, -4.6±3.2, -5.1±3.7; W -3.1±1.5, -6.0±2.7, -7.1±4.7 %;p=0.10), waist circumference(C -2.8±3.7, -5.4±5.2, -6.2±5.1;W -1.1±5.6, -4.2±6.0, -5.9±5.5 %;p_q=0.21) and hip circumference (C -1.7±2.1, -4.1±3.4, -4.7±4.0;W -1.5±3.3, -4.3±3.2, -6.2±4.1 %; p_q =0.15); with no differences seen between groups.
- Subjects in both groups decreased RHR (C -5.6±13.2, -7.4±13.8, -0.7±11.3;W -5.9±18.1, 0.2±20.9, -0.9±20.9 %;p_q=0.22), SBP (C -2.4±6.5, -2.9±9.3, -3.8±8.8;W -4.3±8.6, -3.5±10.1, -4.1±7.5 %; p_q=0.53), and DBP (C -5.1±10.4, -1.5±13.0, -1.6±13.0;W -5.1±11.4, -6.4±11.6, -5.7±10.0 %;p=0.11); with no differences seen between groups.
- MANOVA analysis of strength and strength endurance revealed a significant difference between groups (p=0.008). Participants in C improved their leg press 1RM (C 5.6±15.6, W 0.0±19.3%), bench press 1RM (C 4.5±13.6, W -0.9±9.8%), leg press endurance (C 22.3±85.4, W 7.1±53.9%), and bench press endurance (C 45.4±97.2, W -10.5±39.1%).
- Participants in the C group generally improved to a greater degree in Max VO2 (C 11.1±11.5, W 9.3±8.5%;p=0.52).

Conclusions

16-wks of participation in both the Curves Fitness and Weight Management and the Weight Watchers® Momentum program promoted improvement in some markers of health. However, participation in the Curves program promoted more favorable changes in strength and endurance.

Acknowledgements & Funding

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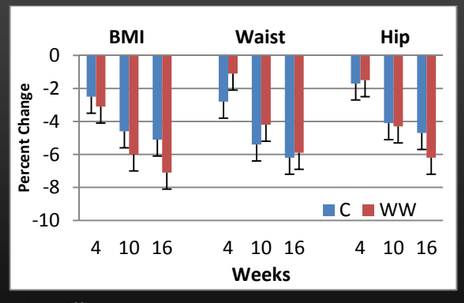
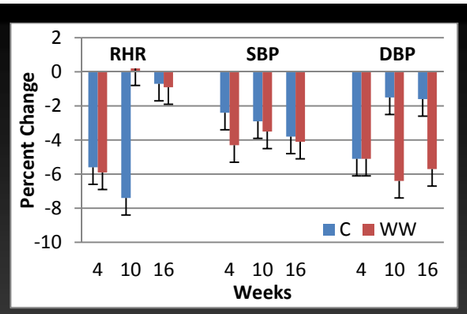
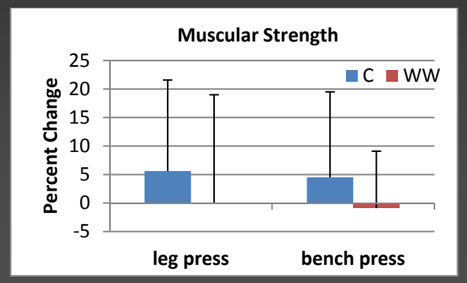


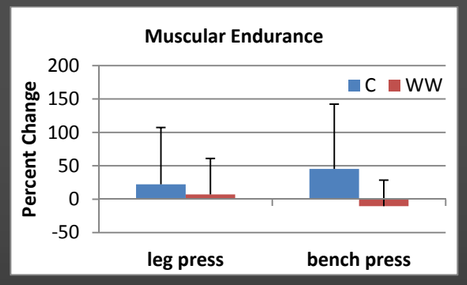
No difference between groups.



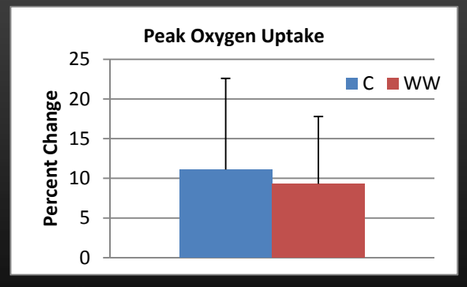
No difference between groups.



Significant group difference (p=0.008).



Significant group difference (p=0.008).



No difference between groups.

COMPARATIVE EFFECTIVENESS OF TWO POPULAR WEIGHT LOSS PROGRAMS IN WOMEN IV: QUALITY OF LIFE AND DIET SATISFACTION

A Jagim, M Mardock, B Lockard, S Simbo, M Byrd, JY Kresta, C Baetge, Y Jung, M Koozehchian, D Khanna, H Kyul, JM Oliver, M. Greenwood, C Rasmussen, R Kreider. Exercise & Sport Nutrition Lab, Texas A&M University, College Station, TX 77843

Abstract

Background: A number of commercial diet and exercise programs are promoted to help people lose weight and improve fitness. However, few studies have compared the effects of following different types of exercise and diet interventions on weight loss, health, and quality of life. The purpose of this study was to compare the efficacy of a more structured meal plan based diet intervention and supervised exercise program that included resistance-exercise to a traditional point based diet program with weekly counseling and encouragement to exercise. **Methods:** 51 sedentary women (35±8 yrs, 163±7 cm; 90±14 kg; 47±7% body fat, 34±5 kg/m^2) were randomized to participate in the Curves (C) or Weight Watchers (W) weight loss programs for 16-wks. Participants in the C program were instructed to follow a 1,200 kcal/d diet for 1-week, 1,500 kcal/d diet for 3 weeks, and 2,000 kcals/d diet for 2-weeks consisting of 30% carbohydrate, 45% protein, and 30% fat. Subjects then repeated this diet. Participants also participated in the Curves circuit resistance training program 3 days/week for 30-minutes. This program involved performing 30-60 seconds of bi-directional hydraulic-based resistance-exercise on 13 machines interspersed with 30-60 seconds of low-impact callisthenic or Zumba dance exercise. Participants in the W group followed the W point-based diet program, received weekly counseling, and were encouraged to increase physical activity. Eating satisfaction and SF-36 quality of life and questionnaires were obtained at 0, 4, 10, & 16 wks and analyzed by multivariate analysis of variance (MANOVA) with repeated measures. Data are presented as changes from baseline for the C and W groups, respectively. **Results:** MANOVA analysis of SF36 quality of life indices revealed an overall Wilks' Lamda time effect (p=0.09) with no significant diet (p=0.44) or time x diet effect (p=0.45). Within subjects univariate analysis revealed that both programs increased rating of physical function (17.3±36 %, p=0.002), role physical (17.5±56 %, p=0.03), role emotional (11.8±30 %, p=0.02), vitality (20.8±35 %, p=0.001), role emotion (19.1±30 %, p=0.001), bodily pain (19.1±34 %, p=0.001) and general health (12.6±23 %, p=0.001) with no time effect on social functioning (3.0±20 %, p=0.57) following 16 weeks. No significant interactions were seen between diet groups. MANOVA analysis of eating satisfaction inventories revealed significant within subjects time effects (p=0.001) with a trend toward a significant interaction effect (p=0.059). Univariate analysis revealed that both programs decreased rating of appetite (-0.5±1.5, p=0.003), amount of energy (-1.6±2.0, p=0.001), and overall quality of diet (-2.5±2.7, p=0.001) with no time effect on hunger (0.1±1.6, p=0.38) or satisfaction from food (-0.3±2.0, p=0.64) following 16 weeks. Perceptions of feelings of fullness were significantly higher in the C group (C 0.4±1.9, 0.0±1.7, 0.5±1.4; W -0.8±1.8,-0.7±1.9, -0.8±1.4; p=0.04).

Supported by Curves International (Waco, TX)

Rationale

Energy-dense diets and physical inactivity have led to a worldwide epidemic of obesity. The alarming rise in the prevalence of obesity calls for the identification of weight loss programs that utilize proven weight loss strategies to improve overall quality of life and food satisfaction. Curves International, Inc. and Weight Watchers International, Inc. are two widely recognized commercial companies that provide weight management services that are based on scientifically validated principles. Previous research completed at the Exercise & Sport Nutrition Lab, Texas A&M University, has shown that improvements in fitness and health often coincide with improvements in quality of life. The purpose of this study was to determine if completion of a structured diet and exercise program would lead to improvements in food satisfaction and overall quality of life.

Experimental Design

- Subjects were informed as to the experimental procedures and signed informed consent statements in adherence with human subject guidelines.
- 51 sedentary obese women (35 ± 8 yrs; 163 ± 7cm; 90 ± 14 kg; 47 ± 7 % body fat, 34 ± kg/m^2) participated in this study.
- The diets involved consuming 1,200 kcal/d for 1-wk and 1,500 kcal/d for 3 wks. Subjects then followed a diet consisting of 2,000 kcals/d for the next 2 weeks and continued this diet for the remainder of the study.
  - Weeks 1-4 consisted of a carbohydrate to protein ration of 45:30 and the next 2 weeks consisted of a 45:30 ratio.
- Subjects either participated in a supervised 30-min resistance circuit training program with that was interspersed with calisthenic exercises and Zumba; performed 3-d per week or participated in the Weight Watchers program for the entire duration of the study.

Methods & Procedures

SF-36v2, Eating Satisfaction and Body Image questionnaires were completed and obtained at 0,4,10 and 16 weeks.

Statistical Analysis

Data were analyzed by MANOVA with repeated measures using SPSS for Windows version 17.0 software (Chicago, IL) and are presented as means ± SD % change from baseline for each group.

Results

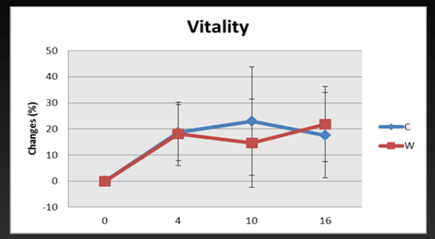
- Analysis of SF36 quality of life indices revealed an overall Wilks' Lamda time effect (p=0.09) with no significant diet (p=0.44) or time x diet effect (p=0.45).
- Within subjects univariate analysis revealed that both programs increased rating of physical function (17.3±36 %, p=0.002), role physical (17.5±56 %, p=0.03), role emotional (11.8±30 %, p=0.02), vitality (20.8±35 %, p=0.001), role emotion (19.1±30 %, p=0.001), bodily pain (19.1±34 %, p=0.001) and general health (12.6±23 %, p=0.001) with no time effect on social functioning (3.0±20 %, p=0.57) following 16 weeks. No significant interactions were seen between groups.
- Analysis of eating satisfaction inventories revealed significant within subjects time effects (p=0.001) with a trend toward a significant interaction effect (p=0.059).
- Univariate analysis revealed that both programs decreased rating of appetite (-0.5±1.5, p=0.003), amount of energy (-1.6±2.0, p=0.001), and overall quality of diet (-2.5±2.7, p=0.001) with no time effect on hunger (0.1±1.6, p=0.38) or satisfaction from food (-0.3±2.0, p=0.64) following 16 weeks. Perceptions of feelings of fullness were significantly higher in the C group (C 0.4±1.9, 0.0±1.7, 0.5±1.4; W -0.8±1.8,-0.7±1.9, -0.8±1.4; p=0.04).

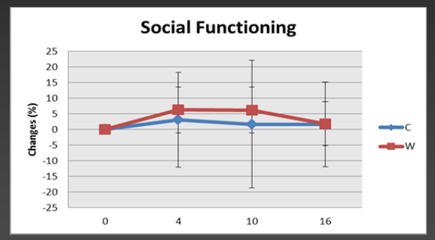
Conclusions

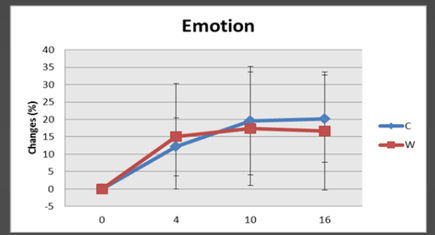
- Results indicate that participation in the C and W programs generally improve markers of quality of life and participants following the C program experience fullness to a greater fullness than those following the W program.

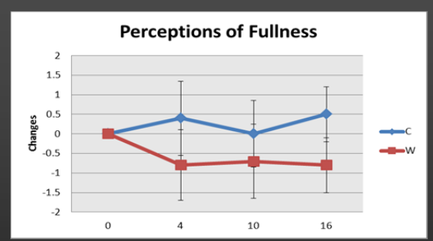
Practical Application

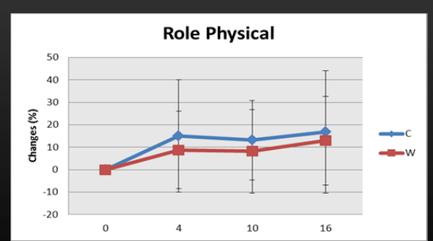
- Improvements in quality of life and diet satisfaction can be seen by following the curves or weight watchers programs with perceptions of fullness being greater with participation in the curves program.











EXPERIENCING THE IMPACT OF WEIGHT LOSS ON WORK CAPACITY PRIOR TO THE INITIATION OF A WEIGHT LOSS PROGRAM ENHANCES SUCCESS

M Greenwood FISSN, M Mardock, B Lockard, JM Oliver, M Byrd, S Simbo, A Jagim, JY Kresta, C Baetge, Y Jung, M Koozehchian, D Khanna, C Rasmussen, R Kreider FISSN
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Exercise • Nutrition • Health • Performance
ESNL
Exercise & Sport Nutrition Lab

Abstract

51 sedentary women (35±8 yrs, 163±7 cm; 90±14 kg; 47±7% body fat, 34±5 kg/m^2) were randomized to walk on an AlterG Anti-Gravity Treadmill® (AG) at 3 mph at 100% and 80% of body mass or were entered into a weight loss program directly (WL). Participants were then randomized to participate in the Curves (C) exercise and weight loss program or the Weight Watchers (W) weight loss program for 16-wks to compare both options. Participants in the C program were instructed to follow a 1,200 kcal/d diet for 1-week, 1,500 kcal/d diet for 3 weeks, and 2,000 kcals/d diet for 2-weeks consisting of 30% carbohydrate, 45% protein, and 30%fat. Subjects then repeated this diet. Subjects also participated in the Curves 13 machine circuit style resistance training program interspersed with 30-60 seconds of low-impact callisthenic or Zumba dance exercises 3 days/week and were encouraged to walk at brisk pace for 30-min on non-training days. Participants in the W group followed the W point-based diet program and were encouraged to increase physical activity. Data are displayed as from baseline for the WL and AG groups, respectively, after 4, 10, and 16 weeks. The amount of vigorous PA performed at each data point in the AG group was significantly greater throughout the study (WL 953±1,221, 844±653, 1,338±1,767, 1,266±1,535;AG803±1,282,1,332±1,719,1,286±1,974,1,579±2, 091 MET-min/wk, p=0.01). Overall, MANOVA revealed a significant time by intervention effect (p=0.02) in body composition. Univariate analysis revealed that both groups lost a similar amount of weight (WL -2.8±2.1, -5.3±3.4, -5.9±4.4; AG -2.3±1.1, -4.3±2.4, -5.1±3.5 kg, p=0.40) and fat mass loss (WL -2.0±6.1, -2.4±6.4, -4.1±7.8; AG -2.1±5.7, -4.4±5.7, -5.2±6.4 kg, p=0.43) while changes in fat free mass (WL -0.3±5.4, -2.1±5.2, -1.5±5.2; AG -0.3±5.1, 0.3±4.7, 0.2±4.6 kg, p=0.08) and percent body fat (WL -1.0±5.9, -0.2±6.1, -1.7±6.6; AG -1.5±6.9, -3.9±7.5, -4.5±7.6 %, p=0.07) tended to be more favorable in the AG group.

Rationale

Researchers in the Exercise & Sport Nutrition Laboratory at Texas A&M University have conducted a number of studies on the effectiveness and safety of the Curves fitness and weight loss program in overweight women. The program involves performing a 30-minute Curves circuit style resistance training program interspersed with calisthenic exercise or Zumba dance exercises. The program also involves a weight management program that has typically involved reducing caloric intake to 1,200 kcals/day for 1 week and 1,500 kcals/day for 3-9 weeks. Results of these studies have indicated that this program is effective in promoting weight loss, fat loss, and maintaining REE but that weight loss progression slows over time.

This study examined whether having sedentary and overweight individuals experience the impact of losing weight on work capacity prior to the initiation of an exercise and how a weight loss program would influence weight loss success relative to the Curves diet/fitness program compared to the Weight Watchers diet plan in conjunction with a designated walking protocol on an AlterG Anti-Gravity Treadmill.

Experimental Design

Subjects

- 51 sedentary women (35±8 yrs, 163±7 cm; 90±14 kg; 47±7% body fat, 34±5 kg/m^2) were randomized to walk on an AlterG Anti-Gravity Treadmill® (AG) at 3 mph at 100% and 80% of body mass or were entered into a weight loss program directly (WL).
- Subjects were informed as to the experimental procedures and signed informed consent statements in adherence with the human subject guidelines of Texas A&M University.

Diet Protocol

- 29 subjects were randomized to follow the Curves {C} diet that consisted of 30% CHO, 45% PRO, & 25% F.
- The diets involved consuming 1,200kcal/day for 1 week, 1,500kcal/day for 3 weeks, and 2,000 kcals for 2 weeks and then repeating the diet cycle.
- 22 subjects participate in the Weight Watchers {W} programs for 16-wks & followed the W point based program as directed. .
- Subjects were required to maintain the diet for the duration of the study.

Training Protocol

- Subjects in the Curves diet group participated in a supervised 30-min resistance training (Curves with Zumba) fitness program 3 days/week for the entire duration of the study.
- Subjects in the Weight Watchers program were encouraged to increase physical activity according to program recommendations.
- Prior to the initiation of a specific weight loss program {C or W}, participants were randomized to walk on the AlterG Anti-Gravity Treadmill (AG) at 3 mph at 100% and 80% of body mass or assigned to the Curves with Zumba fitness program.

Methods & Procedures

- Four day dietary records & DEXA helped determined body composition at 0, 4,10 and 16 weeks
- Subjects reported any side effects associated with participating in the study to a research assistant on a weekly basis.

Statistical Analysis

Utilizing a MANOVA with repeated measures procedure [SPSS for Windows version 18 software (Chicago, IL) data are presented as changes from baseline for AG & WL groups respectively after 4, 10, 16 weeks (means ± SD changes)].

Results

- The amount of vigorous PA performed at each data point in the AG group was significantly greater throughout the study (WL 953±1,221,844±653,1,338±1,767, 1,266±1,535; AG 803±1,282, 1,332±1,719, 1,286±1,974, 1,579±2,091 MET-min/wk, p=0.01).
- MANOVA also revealed a significant time by intervention effect (p=0.02) in body composition variables.
- Univariate analysis revealed that both groups lost a similar amount of weight (WL -2.8±2.1, -5.3±3.4, -5.9±4.4; AG -2.3±1.1, -4.3±2.4, -5.1±3.5 kg, p=0.40) and fat mass loss (WL -2.0±6.1, -2.4±6.4, -4.1±7.8; AG -2.1±5.7, -4.4±5.7, -5.2±6.4 kg, p=0.43) while changes in fat free mass (WL -0.3±5.4, -2.1±5.2, -1.5±5.2; AG -0.3±5.1, 0.3±4.7, 0.2±4.6 kg, p=0.08) and percent body fat (WL -1.0±5.9, -0.2±6.1, -1.7±6.6; AG -1.5±6.9, -3.9±7.5, -4.5±7.6 %, p=0.07) tended to be more favorable in the AG group.

Conclusions

Results indicate that experiencing the impact of losing weight on work capacity prior to initiation of an exercise and/or weight loss program has a positive impact on increasing vigorous activity and changes in body composition. More research is needed to examine whether use of this strategy more often during a weight loss program may affect adherence and/or efficacy of different types of weight loss programs

Funding

Supported by AlterG (Fremont, CA) and Curves International Inc. (Waco, TX)
http://esnl.tamu.edu