



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

Exercise • Nutrition • Health • Performance

ESNL
Exercise & Sport Nutrition Lab

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Abstract

PURPOSE: To determine the effects of following either the Curves® Fitness and Weight Management Plan or the Weight Watchers® Momentum™ Plan for 16 weeks on body composition and resting energy expenditure in previously sedentary obese women. **METHODS:** 42 sedentary women (33±7 yrs, 164±7 cm; 93±19 kg; 46±7% body fat, 35±6 kg/m²) were randomized to participate in the Curves® (C) or Weight Watchers® (W) weight loss programs for 16-wks. Participants in the C program followed a 1,200 kcal/d diet for 1-wk and 1,500 kcal/d diet for 3 wks (30:45 CHO:PRO). Subjects then ingested 2,000 kcals/d for 2-wks (45:30) and repeated this diet while participating in the Curves® with Zumba program 3-d-wk. Remaining subjects followed the W point-based diet program, received weekly group counseling, and were encouraged to exercise. DEXA body composition and REE measurements were obtained at 0, 4, 10, & 16 wks and were analyzed by MANOVA. **RESULTS:** Subjects in both groups lost a similar amount of body weight (C -2.7±2.3, -4.9±3.8, -5.4±4.1; W -2.9±1.6, -5.7±2.9, -6.7±4.3 kg, p=0.31). However, subjects in the C group experienced significantly greater loss in fat mass (C -4.2±6.4, -4.8±6.2, -6.5±4.1; W 0.2±6, -1.0±7.3, -2.6±7.9 kg, p=0.03) and reductions in percent body fat (C -3.3±6.3, -3.0±5.9, -4.8±6.7; W 1.1±6.7, 0.3±8.7, -1.0±8.3 %, p=0.06), while FFM was increased in the C group and decreased in the W group (C 1.6±5.2, 0.1±4.8, 1.2±5.0; W -2.5±5.6, -3.7±6.5, -3.4±5.7 kg, p=0.02). REE values increased over time and were non-significantly higher in the C group. **CONCLUSION:** 16-wks of participation in the C program promotes more favorable changes in body composition than participation in the W program.

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 (1,200-1,500 kcals/d) followed by periods of higher caloric intake (2,000-2,500 kcals/d). The Curves 30-minute circuit workout consists of performing 30s of resistance exercise on 13 bi-directional hydraulic resistance exercise machines

interspersed with floor-based aerobic exercises (circuit performed twice), followed by stretching. During Curves Zumba workouts, Zumba dance moves are performed in between 1 minute of resistance exercise on each machine. The Weight Watchers® Momentum™ Program provides an eating plan, which revolves around the POINTS system. A daily POINTS target is assigned based on an individual's weight, height, age, and activity level. Additional weekly POINTS are provided for use as needed. Weight Watchers Members attend weekly meetings where weight loss strategies are discussed and weekly weights are attained. Members are also encouraged 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.
- 42 sedentary women (33±7 yrs, 164±7 cm; 93±19 kg; 46±7% body fat, 35±6 kg/m²) participated in this study.
- Subjects were assigned to a Curves group (C, n=19) or a Weight Watchers group (W, n=23).
- 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

- 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

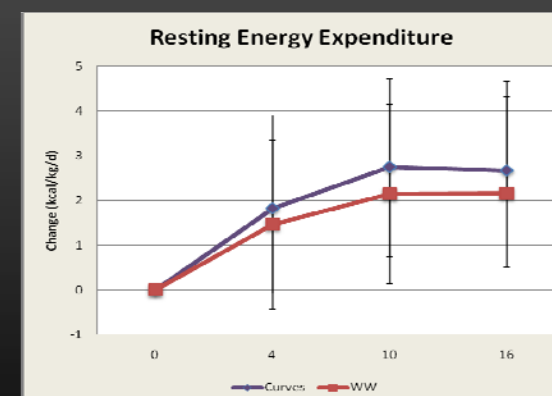
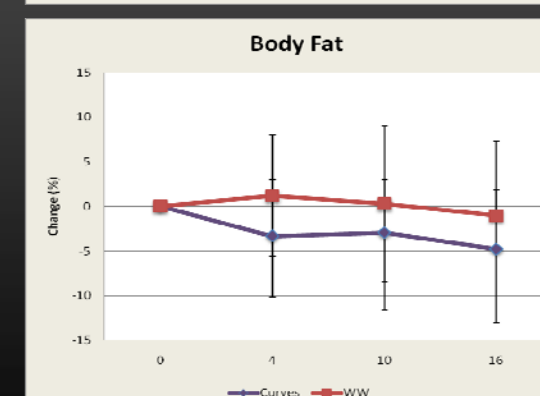
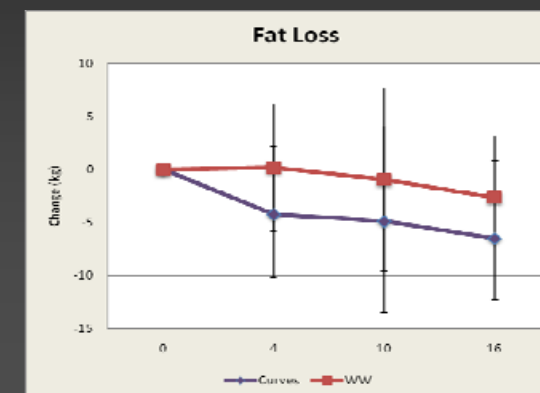
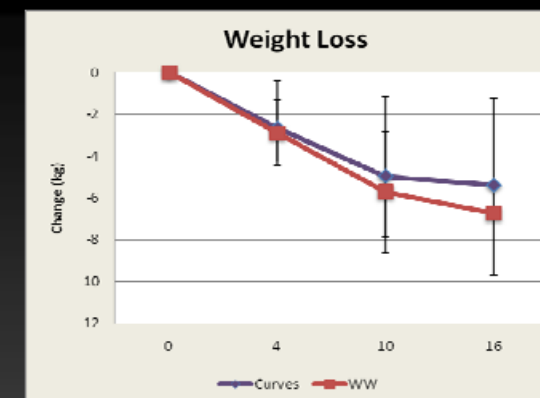
- Subjects in both groups lost a similar amount of body weight (C -2.7±2.3, -4.9±3.8, -5.4±4.1; W -2.9±1.6, -5.7±2.9, -6.7±4.3 kg, p=0.31)
- Subjects in the C group experienced significantly greater loss in fat mass (C -4.2±6.4, -4.8±6.2, -6.5±4.1; W 0.2±6, -1.0±7.3, -2.6±7.9 kg, p=0.03) and reductions in percent body fat (C -3.3±6.3, -3.0±5.9, -4.8±6.7; W 1.1±6.7, 0.3±8.7, -1.0±8.3 %, p=0.06).
- FFM increased in the C group and decreased in the W group (C 1.6±5.2, 0.1±4.8, 1.2±5.0; W -2.5±5.6, -3.7±6.5, -3.4±5.7 kg, p=0.02).
- Resting energy expenditure (REE) values increased over time and were non-significantly higher in the C group.

Conclusions

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

Acknowledgements & Funding

We would like to thank Dr. J.P. Bramhall for his medical oversight of this study. Supported by Curves International Inc., Waco, TX
<http://esnl.tamu.edu>





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

Exercise • Nutrition • Health • Performance



Exercise & Sport Nutrition Lab

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Abstract

PURPOSE: To compare the effects of two commercial weight loss programs on metabolic markers. **METHODS:** 42 sedentary women (33±7 yrs, 164±7 cm; 93±19 kg; 46±7% body fat, 35±6 kg/m²) were randomized to participate in the Curves® Fitness and Weight Management Plan (C) or Weight Watchers® Momentum™ Plan (W) program for 16 weeks in order to compare the efficacy of these weight loss program approaches. Participants in the C program were instructed to follow a 1,200 kcal/d diet for 1-wk and 1,500 kcal/d diet for 3 wks consisting of 30% CHO, 45% PRO, and 25% F. Subjects then ingested 2,000 kcals/d for 2 wks (45:30:25) and then repeated this cycle while participating in the Curves with Zumba circuit-training program 3-d per wk. Remaining subjects followed the W point-based diet program, had weekly counseling sessions, and were encouraged to exercise. Fasting blood samples were obtained at 0, 4, 10, & 16 wks and analyzed by MANOVA with repeated measures. **RESULTS:** Data are presented as means ± SD percent changes from baseline. Both programs promoted significant decreases ($p<0.05$) in total cholesterol (-5.9±11%) and LDL-c (-8.8±17%). Significant interactions were seen in changes in total CHL (C -4.0±12, -1.9±9, -2.2±11; W -5.9±8, -7.1±10, -9.0±11%, $p=0.03$), LDL-c (C -4.0±18, 1.8±15, -3.2±19; W -5.8±12, -6.8±15, -13.4±15%, $p=0.03$), HDL-c (C -3.5±12, 0.1±10, 1.6±16; W -9.3±11, -9.9±12, -0.1±13%, $q_p=0.002$), the ratio of CHL:HDL (C 1.7±11, -0.4±9, -1.9±12; W 5.1±13, 4.2±13, -7.9±10 %, $q_p=0.009$), triglycerides (C -6.3±27, -10.3±13, -5.4±22; W 4.1±25, -3.4±31, -0.2±43%, $c_p=0.03$), and blood glucose (C 2.1±15, 0.7±13, -2.6±12; W -2.2±7, -3.2±10, -2.1±8%, $q_p=0.05$). **CONCLUSION:** Results suggest that adherence to a consistent point based diet plan may promote more favorable changes in blood lipids than cycling caloric intake. However, participating in the structured exercise program had more beneficial effects on HDL-c and triglyceride levels. *Supported by Curves International (Waco, TX)*

Rationale

Metabolic syndrome is a medical condition that increases a person's risk of developing cardiovascular disease and various health related issues. Mild to moderate weight loss has been proven to prevent or decrease the metabolic risk factors. Weight Watchers International, Inc. and Curves International, Inc. are two widely recognized commercial companies that provide weight management services based on scientifically validated principles. The purpose of this study is to compare the efficacy of these weight loss program approaches on metabolic markers.

Experimental Design

- Subjects were informed of the experimental procedures and signed informed consent statements in adherence with the human subject guidelines of Texas A&M University.
- 42 sedentary women (33±7 yrs; 93±19 kg; 46±7% fat) participated in this study.
- Subjects were assigned to the Curves fitness and weight loss program (C, n=19) or the Weight Watchers program (W, n=23).
- The Curves program involved a cyclic-caloric high protein diet and participation in the Curves with Zumba circuit-training program.
- The diet consisted of 1,200 kcal/d for 1-wk, followed by 1,500 kcal/d for 3-wks (both with 30:45%, CHO:PRO) and 2,000 kcal/day for 2-wks (45:30%); which was then repeated with weekly follow-up.
- Subjects also participated in a supervised 30-min resistance circuit training program interspersed with callisthenic exercises 3 days/week for the entire duration of the study.
 - 30-s intervals (resistance and calisthenic) were performed 2 days/week.
 - 60-s intervals (resistance and Zumba dance) were performed 1 day/week.
- The Weight Watchers program involved adherence to the point-based system and attendance at weekly counseling sessions. Exercise was encouraged but not mandatory.

Methods & Procedures

Fasting blood samples were obtained at 0, 4, 10, & 16 wks and sent to Quest Diagnostics (Dallas, TX) for a complete metabolic panel analysis.

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 percent changes from baseline.

Results

- In 16 weeks, both C and W programs promoted significant decreases ($p<0.05$) in total cholesterol (-5.9±11%) and LDL-c (-8.8±17%).

- Significant interactions were seen in changes of:

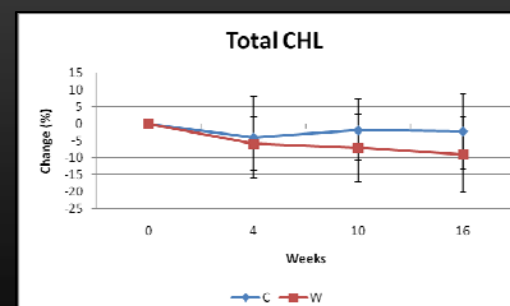
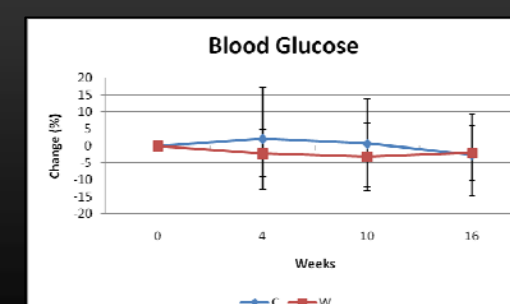
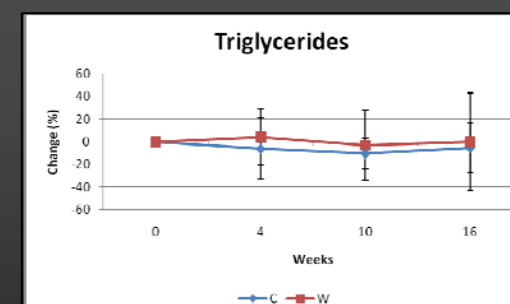
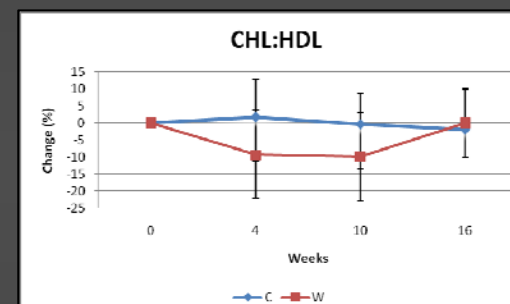
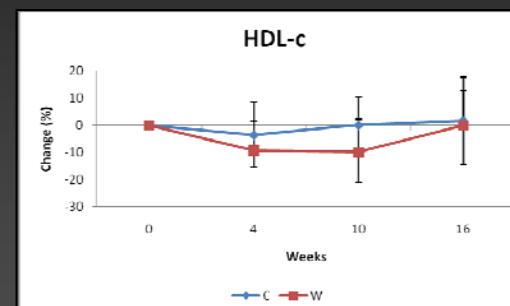
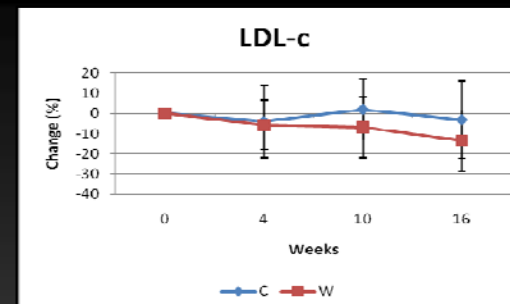
- Total CHL (C -4.0±12, -1.9±9, -2.2±11; W -5.9±8, -7.1±10, -9.0±11%, $p=0.03$)
- LDL-c (C -4.0±18, 1.8±15, -3.2±19; W -5.8±12, -6.8±15, -13.4±15%, $p=0.03$)
- HDL-c (C -3.5±12, 0.1±10, 1.6±16; W -9.3±11, -9.9±12, -0.1±13%, $q_p=0.002$)
- Ratio of CHL:HDL (C 1.7±11, -0.4±9, -1.9±12; W 5.1±13, 4.2±13, -7.9±10 %, $q_p=0.009$)
- Triglycerides (C -6.3±27, -10.3±13, -5.4±22; W 4.1±25, -3.4±31, -0.2±43%, $c_p=0.03$)
- Blood glucose (C 2.1±15, 0.7±13, -2.6±12; W -2.2±7, -3.2±10, -2.1±8%, $q_p=0.05$).

Conclusions

A consistent point based diet plan may promote more favorable changes in blood lipids than cycling caloric intake, while participation in the structured exercise program had more beneficial effects on HDL-c and triglyceride levels.

Acknowledgements and Funding

We would like to thank Dr. J.P. Bramhall for his medical expertise throughout this study. Supported by Curves International Inc., Waco, TX
<http://esnl.tamu.edu>





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

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Abstract

42 sedentary women (33±7 yrs, 164±7 cm; 93±19 kg; 46±7% body fat, 35±6 kg/m²) were randomized to participate in the Curves (C) or Weight Watchers (W) programs for 16-wks. Participants in the C program followed a 1,200 kcal/d diet for 1-wk and 1,500 kcal/d diet for 3 wks (30:45 CHO:PRO). Subjects then ingested 2,000 kcals/d for 2-wks (45:30) and repeated this diet while participating in the Curves with Zumba program 3-d-wk. Remaining subjects followed the W point-based diet program. Data were obtained at 0, 4, 10, & 16 wks while fitness was assessed at 0 and 16 wks. Data were analyzed by MANOVA. Both programs decreased BMI (-6.5±4%, p=0.001), waist circumference (-6.2±5%, p=0.001), hip circumference (-5.7±4%, p=0.001), resting HR (-4.2±13%, p=0.04), resting SBP (-3.2±8%, p=0.06), and increased peak aerobic capacity (10.9±9%, p=0.001). Waist circumference tended to decrease at a faster rate in the C group (p=0.08) and changes in resting HR were generally improved to a greater degree in the C group. Bench press 1RM (C 4.9±13, W -1.1±11%, p=0.11), leg press 1RM (C 5.8±15, W 1.4±20%, p=0.44), bench press endurance (C 59±100, W 2.7±49%, p=0.02), leg press endurance (C 12.3±93, W 1.8±57%, p=0.66), and peak aerobic capacity (C 12.5±9, W 9.6±9%, p=0.31) were generally higher in the C group. Results indicate that participation in the C program improved some markers of health & fitness to a greater degree than the W program.

Supported in part by Curves International Inc. Waco, TX

Rationale

The Curves International fitness and weight loss program has become a very popular means of promoting health and fitness among women. The program involves a 30-minute circuit training program and a weight management program involving periods of moderate caloric restriction (1,200 to 1,600 calories per day) followed by short periods of higher caloric intake (2,600 calories per day). The program is designed to promote a gradual reduction in body fat while increasing strength and muscle mass/tone.

Researchers in the Exercise & Sport Nutrition Laboratory at Texas A&M University have continued to pursue an extensive study on the effectiveness and safety of the Curves fitness and diet program which was initiated at Baylor University.

Results of this study have shown that the program promotes weight loss, improves markers of health, and improves fitness. However, we feel that the program may be even more effective with some additional nutritional interventions.

The purpose of this study is to compare the effects of the Curves Fitness & Weight Management Plan, to the Weight Watchers Point-Based Diet Program on markers of fitness in women over a 16 week period.

Experimental Design

Subjects

- 42 sedentary women (33±7 yrs, 164±7 cm; 93±19 kg; 46±7% body fat, 35±6 kg/m²) participated in this study.
- Subjects were informed as to the experimental procedures and signed informed consent statements in adherence with the human subject guidelines of Baylor University.

Diet Protocol

- Based on baseline testing, subjects were randomized and assigned to one of the following groups for the 16 week intervention:
 - Curves (C); or
 - Weight Watchers (W).
- The C group consumed 1200 kcal/d for 1-wk, 1500 for 3 wks, and 2000 for 2 wks; (30:45:25; CHO:PRO:FAT) and repeated this cycling 3 times.
- The W group followed the W point-based diet program.
- Subjects were required to maintain their respective diet routines for the duration of this 16 week study.

Training Protocol

- C Subjects participated in a supervised 30-min resistance training circuit program that was interspersed with calisthenic exercises and performed 3-d per week for the entire duration of the study.
- W Subjects participated in the W points-based program.

Methods & Procedures

- BMI, Hip & Waist, HR, VO₂ Peak, Upper/Lower body strength & endurance were measured at 4, 10, & 16 weeks.
- Subjects reported any side effects associated with participating in the study to ESNL staff on a weekly basis.

Statistical Analysis

- Data was analyzed by repeated measures MANOVA using SPSS for Windows version 18 software (Chicago, IL) and are presented as means ± SD from baseline for each group (C and W) at 16 weeks.

Results

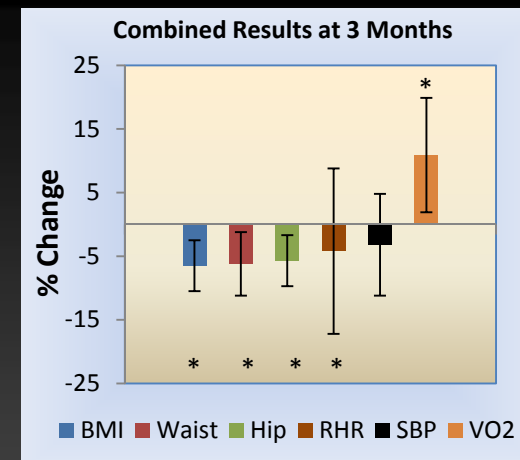
- After 16 weeks, Both programs decreased BMI (-6.5±4%, p=0.001), waist circumference (-6.2±5%, p=0.001), hip circumference (-5.7±4%, p=0.001), resting HR (-4.2±13%, p=0.04), resting SBP (-3.2±8%, p=0.06), and increased peak aerobic capacity (10.9±9%, p=0.001).
- Waist circumference tended to decrease at a faster rate in the C group (p=0.08) and changes in RHR were generally improved to a greater degree in the C group.
- Bench press 1RM (C 4.9±13, W -1.1±11%, p=0.11), leg press 1RM (C 5.8±15, W 1.4±20%, p=0.44), bench press endurance (C 59±100, W 2.7±49%, p=0.02), leg press endurance (C 12.3±93, W 1.8±57%, p=0.66), and peak aerobic capacity (C 12.5±9, W 9.6±9%, p=0.31) were generally higher in the C group.

Conclusions

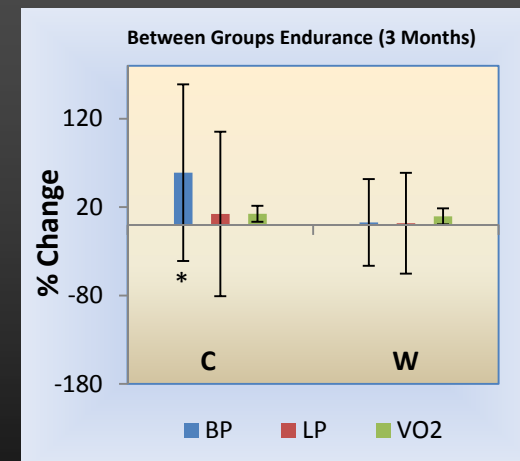
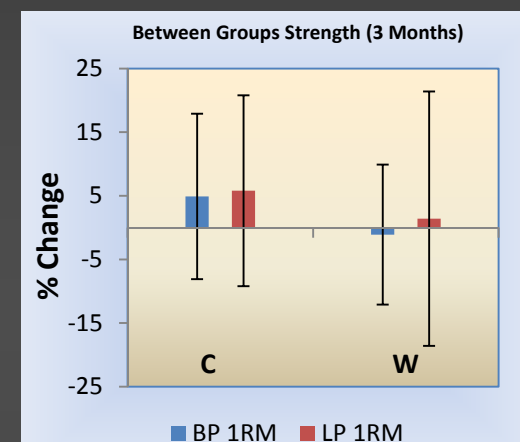
- C & W both showed significantly decreased BMI, Waist & Hip circumference, RHR, & resting SBP, while significantly increasing VO₂ peak.
- 1RM BP & LP, BP & LP endurance; and VO₂ peak all trended in favor of the C group.

Funding

Supported by Curves International Inc., Waco, TX
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* = Significant from baseline



* = Significant difference