EFFECTS OF DIET CYCLING ON WEIGHT LOSS AND RESTING ENERGY EXPENDITURE IN WOMEN PARTICIPATING IN THE CURVES® FITNESS PROGRAM

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Abstract

This study examined the efficacy of cycling diet phases in order to promote weight loss and maintenance of REE. 44 sedentary women (34±7 yrs, 89±19 kg; 43±5% body fat) were assigned to a high carbohydrate (HC, n=25) or high protein (HP, n=19) diet group. During the first 30-days, subjects consumed 1,200 kcals/d for 1-wk followed by ingesting 1,500 kcals/d for 3-wks. Subjects then followed a 2,200 kcals/d maintenance diet for 4 wks and then repeated the 30-day diet. Diets were 45% CHO, 30% PRO, and 25% F or 45% PRO, 30% CHO, and 25% F. Subjects participated in the Curves circuit training program 3-d/wk and walked for 30- min 3-d/wk. Data were analyzed by repeated measures ANOVA and are presented as means ± SD changes from baseline after 1, 2, & 3 months for the HC and HP groups, respectively. Significant time effects (p=0.001) were observed in weight loss and fat loss with no differences between types of diets in weight loss (HC -3.7±4.3, -5.4±5.5, -7.2±7.6; HP -5.8±4.9, -7.3±5.8, -8.9±6.6, lbs p=0.12) and fat loss (HC -3.1±3.5, -5.0±4.4, -5.4±4.9; HP -3.5±3.6, -5.6±4.6, -7.0±5.1 lbs, p=0.33). Mean REE values declined and rebounded over time (p=0.01) with no differences between groups (HC -0.92±2.5, -0.83±3.1, -0.33±3.0; HP -0.39±2.1, -0.76±2.4, 0.09±2.4 kcal/kg/d, p=0.78). Results suggest that following 30-day cycles of dieting/maintenance can promote weight loss while maintaining REE.

Supported by Curves International

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 and Baylor University have conducted an extensive study on the effectiveness and safety of the Curves fitness and diet program. Results of this initial 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 examine the effects of Curves exercise and diet program on weight loss in sedentary overweight women.

Experimental Design

Subjects

- 44 overweight and sedentary women (34±7 yr; 89±19 kg; 43±5% body fat) 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 Texas A&M University.

Diet Protocol

- Based on baseline testing, subjects were assigned to:
  - a high carbohydrate (HC) (45% CHO, 30% protein, 25% fat);
  - a high protein diet (HP) (30% CHO, 45% protein, 25% fat)
- The diets involved consuming 1,200 kcal/d for 1-wk followed by ingesting 1,500 kcal/d for 3-wks. Then they followed a 2,200 kcal/d maintenance diet for 4-wks. Finally, they repeated the 30-d diet.

Training Protocol

- 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.
- Subjects walked 30-min 3-d/wk in addition to the circuit program for the entire duration of the study.

Methods & Procedures

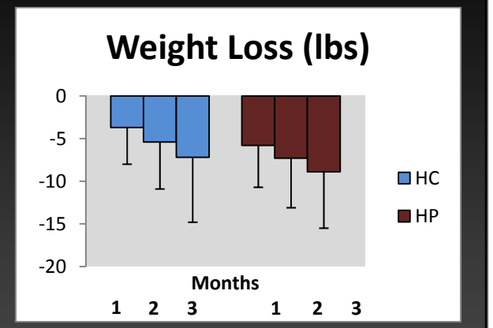
- DEXA body composition and REE measurements were obtained at 0, 1, 2 and 3 months.
- Subjects reported any side effects associated with participating in the study to a research associate on a monthly basis.

Statistical Analysis

- Data was analyzed by repeated measures ANOVA using SPSS for Windows version 11.5 software (Chicago, IL) and are presented as means ± SD changes from baseline for each diet group (HC and HP) after 1, 2 and 3 months of the study.

Results

- Significant time effects (p=0.001) were observed in weight loss across months 1, 2 and 3 with no differences between types of diets in weight loss (HC -3.7±4.3, -5.4±5.5, -7.2±7.6; HP -5.8±4.9, -7.3±5.8, -8.9±6.6, lbs p=0.12).
- Significant time effects (p=0.001) were observed for fat loss across months 1, 2 and 3 with no difference between types of diets (HC -3.1±3.5, -5.0±4.4, -5.4±4.9; HP -3.5±3.6, -5.6±4.6, -7.0±5.1 lbs, p=0.33).
- Mean REE values declined and rebounded over time (p=0.01) with no differences between groups (HC -0.92±2.5, -0.83±3.1, -0.33±3.0; HP -0.39±2.1, -0.76±2.4, 0.09±2.4 kcal/kg/d, p=0.78).



Conclusions

- Following 30-day cycles of dieting and maintenance in conjunction with the Curves fitness program can promote weight loss while maintaining REE.

Funding

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Acknowledgements

We would like to thank Jean Jitomir, Monica Serra, Jen Moreillon, Erika Deike, Geoffrey Hudson, and Mike Greenwood who assisted in data collection on the first cohort of subjects that participated in this study when the ESNL was located at Baylor University.

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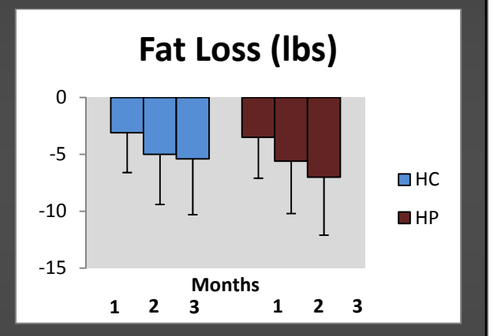

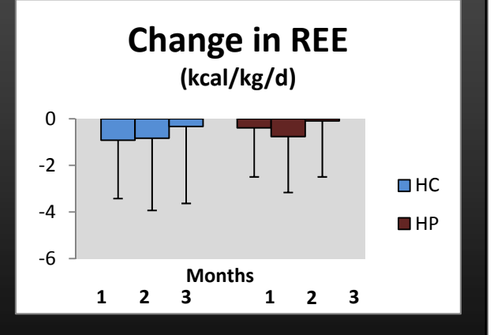

EFFECTS OF 30-DAY DIET CYCLING WEIGHT LOSS AND ENERGY EXPENDITURE IN WOMEN PARTICIPATING IN THE CURVES® FITNESS PROGRAM: A PRELIMNARY LONG-TERM ANALYSIS

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Abstract

This study examined the efficacy of 30-day diet cycling phases in order to promote weight loss and maintenance of REE. 25 sedentary women (34±7 yrs, 89±19 kg; 43±5% body fat) were assigned to a high carbohydrate (HC, n=13) or high protein (HP, n=12) diet group. Subjects consumed 1,200kcals/d for 1-wk and 1,500kcals/d for 3-wks. Subjects then followed a 2,200kcals/d maintenance diet for 4 wks and then repeated diet cycles. Diets were 25% fat with either 45% CHO or 45% PRO. Subjects participated in the Curves circuit training program 3-d/wk and walked for 30-min 3-d/wk. Data were analyzed by repeated measures ANOVA and are presented as means ± SD changes from baseline after 1, 2, 3, 4, & 5 months, respectively. Time effects were observed in weight loss (-5.1±5.0, -7.2±6.1, -9.1±7.8, -10.8±9.3, -11.4±10.4 lbs, p=0.001) and fat loss (-4.0±3.0, -5.9±3.1, -6.5±3.9, -8.5±5.8, -8.8±6.4 lbs, p=0.001) with no significant differences seen between groups in weight loss (HC -4.1±4.1, -6.1±5.8, -8.5±8.4, -9.5±8.9, -10.7±10.7; HP -6.0±5.8, -8.2±6.4, -9.6±7.6, -12.0±9.8, -12.1±7.6 lbs, p=0.79) and fat loss (HC -4.3±3.4, -5.5±2.6, -6.1±3.7, -8.3±5.5, -8.6±6.2; HP -3.8±2.7, -6.2±3.7, -6.8±4.2, -8.7±6.3, -9.0±6.8 lbs, p=0.79). REE declined over time (-0.91±1.7, -1.23±2.4, -0.93±2.3, -0.35±2.3, -0.35±2, 1 kcal/kg/d, Q p=0.01) with no differences between groups. Preliminary findings suggest that following 30-day cycles of dieting/maintenance can promote gradual weight loss while allowing for maintenance in REE.

Supported by Curves International

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 a performing a 30-minute circuit training program 3 days/week and a weight management program that has typically involved reducing caloric intake to 1,200 kcals/day for 1 week (Phase I) and 1,600 kcals/day for 9 weeks (Phase II) during a weight loss period followed by ingesting 2,600 kcals/day (Phase III) during a maintenance period with intermittent dieting (1,200 kcals/day for 2-3 days) if they gain 3 lbs of weight. 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 diet cycling for 30-day periods (1,200 kcals/day for 1 week; 1,500 kcals/day for 3 weeks followed by 2,200 kcals/day for 4 weeks during a maintenance period) while on high carbohydrate (45% CHO, 30% PRO, 25% F) or high protein (30% CHO, 45% PRO, 25% F) diets on weight loss.

Experimental Design

Subjects

- 25 women (34±7yrs; 89±19 kg; 163±7 cm; 43±5% body fat) 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 Texas A&M University.

Diet Protocol

- Based on baseline testing, subjects were assigned to:
  - a high carbohydrate (HC, n=13) (45% CHO, 30% PRO, 25% F)
- a high protein diet (HP, n=12) (30% CHO, 45% PRO, 25% F)
- The diets involved consuming 1,200kcal/day for 1 week (Phase I) and 1,500kcal/day for 3 weeks (Phase II) during weight loss phases and 2,200 kcals/day for 4 weeks with intermittent dieting as needed (1,200 kcals/day for 2 days) during a weight maintenance phase.
- Subjects repeated diet cycles for 5 months.
- Subjects were required to maintain the diet for the duration of the study.

Training Protocol

- Subjects participated in a supervised 30-min resistance training circuit program that was interspersed with calisthenic exercises and performed 3 days/week for the entire duration of the study.

Methods & Procedures

- DEXA body composition and REE measurements were obtained.
- Subjects reported any side effects associated with participating in the study to a research assistant on a weekly basis.

Statistical Analysis

- Data were analyzed by repeated measures ANOVA using SPSS for Windows version 11.5 software (Chicago, IL) and are presented as means ± SD changes from baseline after 5 months of the study.

Results

- After 5 months, subjects experienced a significantly greater (p<0.001) loss in total scanned total mass.
- Time effects were observed in weight loss (-5.1±5.0, -7.2±6.1, -9.1±7.8, -10.8±9.3, -11.4±10.4 lbs, p=0.001) and fat loss (-4.0±3.0, -5.9±3.1, -6.5±3.9, -8.5±5.8, -8.8±6.4 lbs, p=0.001)
- No significant differences were seen between diets in weight loss (HC -4.1±4.1, -6.1±5.8, -8.5±8.4, -9.5±8.9, -10.7±10.7; HP -6.0±5.8, -8.2±6.4, -9.6±7.6, -12.0±9.8, -12.1±7.6 lbs, p=0.79) and fat loss (HC -4.3±3.4, -5.5±2.6, -6.1±3.7, -8.3±5.5, -8.6±6.2; HP -3.8±2.7, -6.2±3.7, -6.8±4.2, -8.7±6.3, -9.0±6.8 lbs, p=0.79).
- REE declined over time (-0.91±1.7, -1.23±2.4, -0.93±2.3, -0.35±2.3, -0.35±2.1 kcal/kg/d, quadratic p=0.01) with no differences between groups.

Conclusions

- 30-day cycles of dieting/maintenance can promote gradual weight loss while allowing for maintenance in REE. REE declined over time (-0.91±1.7, -1.23±2.4, -0.93±2.3, -0.35±2.3, -0.35±2,1 kcal/kg/d, quadratic p=0.01)
- No differences were observed between types of diets in this preliminary analysis.
- The Curves fitness and weight loss program is effective to promote weight loss without marked reductions in REE particularly when following a HC and HP diet.

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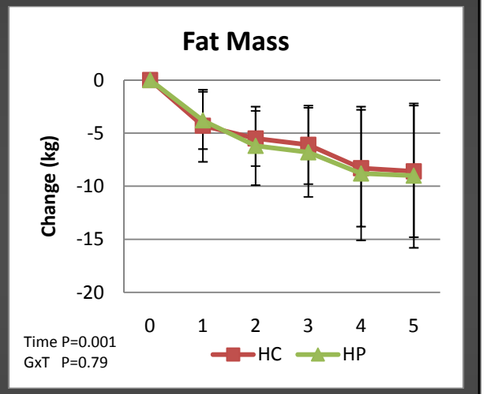

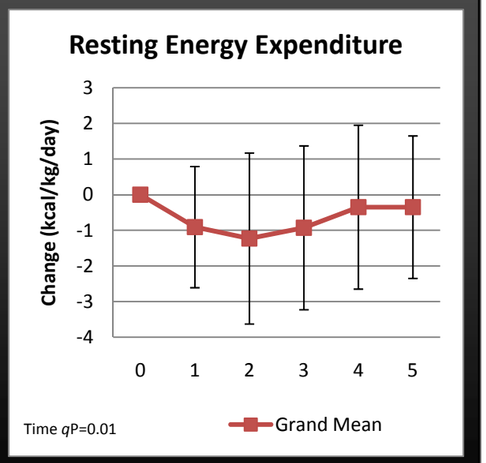

EFFECTS OF HIGH CARBOHYRATE AND HIGH PROTEIN DIETS ON MARKERS OF METABILIC SYNDROME (MS) IN WOMEN PARTICIPATING IN THE CURVES™ FITNESS PROGRAM

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Abstract

223 sedentary women (49±10 yrs, 163±7 cm; 95±17 kg; 45±4% body fat) with at least 3 NCEP-ATP III criteria for MS were assigned to a normal (ND), high carbohydrate (HC), or high protein (HP) diet group while participating in the Curves circuit training fitness program 3-d/wk. Diets were 1,200 kcal/d for 1-wk and 1,600 kcal/d for 9 wks, and contained 30% fat, with either 55% CHO, 15% P (HC), or 7-15% CHO, 55-63% P (HP). Data were analyzed by MANOVA with repeated measures, and represented as means ± SD changes from baseline. Subjects dieting lost more body mass (ND -0.5±2.2; HC -3.8±3.5; HP -4.3±3.7; p=0.001), and DXA fat mass (ND -3.2±4.1; HC -7.0±6.6; HP -6.9±6.3%, p=0.001). TG decreased to a greater degree in the HP group (ND 6.0±38; HC -4.6±30; HP -12.8±29%, p=0.005), Although significant time effects were observed, no differences were seen among groups in changes in waist circumference (ND -0.8±4.4; HC -2.1±9.1; HP -3.0±7.8%, p=0.32), glucose (ND -2.6±15; HC -3.2±15; HP -2.9 ±14%, p=0.98), total CHL (ND -4.4±19; HC 4.9±21; HP -5.8±17%, p=0.91), HDL (ND -0.2±1.8; HC -3.4±18; HP -0.2±19%, p=0.43), SBP (ND -2.0±14; HC -4.3±12; HP -4.3±13%, p=0.57), or DBP (ND -2.3±13; HC -4.9±13; HP -3.3±14%, p=0.52). Results indicate that exercise and dieting can positively affect clinical markers of MS in individuals with MS, and that adherence to a HP diet may promote more favorable changes in TG levels.

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 examine the effects of higher carbohydrate and higher protein diets on markers of metabolic syndrome in women participants of the Curves fitness program.

Experimental Design

Subjects

- 223 sedentary women (49±10yrs; 163±7kg; 45±4% body fat) with at least 3 NCEP-ATP III criteria 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:
  - a normal diet (ND);
  - a high carbohydrate (HC) (55% CHO, 15% protein, 30% fat); or
  - a high protein (HP) (7-15% CHO, 55-63% protein, 30% fat)
- The diets involved consuming 1,200 kcal/d for 1-wk and 1,600 kcal/d for 9 wks.
- Subjects were required to maintain the diet for the duration of the study.

Training Protocol

- 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.

Methods & Procedures

- DEXA body composition, hip/waist, blood pressure, and blood measurements were obtained at 0 and 10 weeks.
- Subjects reported any side effects associated with participating in the study to a research nurse on a weekly basis.

Statistical Analysis

- Data was analyzed by repeated measures MANOVA using SPSS for Windows version 17 software (Chicago, IL) and are presented as means ± SD from baseline for each diet group (ND, HC, and HP) at week 10 of the study.

Results

- After 10 weeks, subjects who dieted experienced a significantly greater loss (p=0.001) in total DEXA scanned mass (ND -0.5±2.2; HC* -3.8±3.5; HP* -4.3±3.7), and fat mass (ND -3.2±4.1; HC* -7.0±6.6; HP* -6.9±6.3).
- Triglycerides decreased to a greater degree (p=0.005) in the HP group (ND 6.0±38%; HC -4.6±30%; HP* -12.8±29%)
- Although significant time effects were observed, no differences were seen among groups for waist circumference (p=0.32), glucose (p=0.98), total CHL (p=0.91), HDL (p=0.43), SBP (p=0.57), or DBP (p=0.52).

Conclusions

- The Curves fitness and weight loss program positively affects clinical markers of metabolic syndrome in individuals with MS, and adhereance to a HP diet may promote more favorable changes in triglyceride levels.

Funding

Supported by Curves International Inc., Waco, TX
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Acknowledgements

We would like to thank all of the faculty members and graduate students who helped collect data in this study when the ESNL was located at Baylor University.

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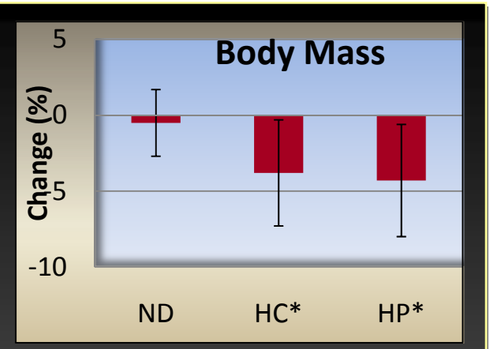

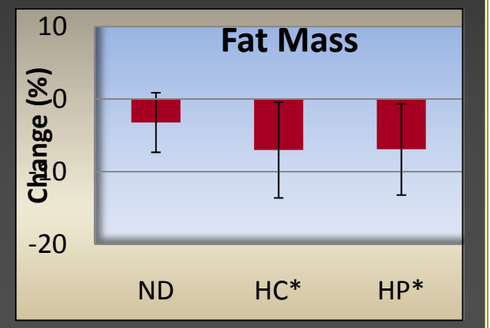

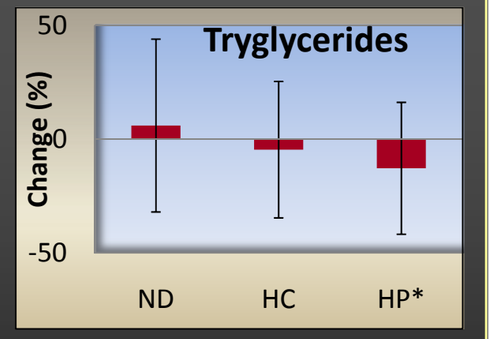

EFFECTS OF EXERCISE AND HIGH CARBOHYDRATE AND HIGH PROTEIN DIETS ON WOMEN WITH AND WITHOUT METABOLIC SYNDROME (MS)

J Oliver, J Culbertson, C Cannon, M Byrd, M Mardock, S Simbo, Y Jung, D Khanna, M Koozehchian, R Dalton, H Kim, B Lockard, C Rasmussen, R Kreider.
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Abstract

396 sedentary women (46±11 yrs, 163±7 cm; 92±18 kg; 45±4% fat) participated in the Curves® circuit training (3 d/wk) and weight loss program (1,200 kcal/d for 1-wk; 1,600 kcal/d for 9-wks that was 30% fat with 55% CHO in a HC group and 50-63% protein in a HP group) for 10-wks. Subjects were divided into those with less than (n=218) or more than (n=178) 3 NCEP-ATP III criteria for MS. Data were analyzed by MANOVA with repeated measures and are presented as means ± SD percent changes from baseline for the non-MS and MS groups, respectively. Subjects with MS experienced significantly greater changes in fasting glucose (1.2±17; -3.0±15 %, p=0.016), TG (4.2±40; -8.7±30 %, p=0.001), SBP (-0.5±10; -4.3±12 %, p=0.001), and DBP (-1.2±12; -4.1±13 %, p=0.02). Although time effects were observed, no differences were seen between groups in weight loss (-3.7±3.6; -4.0±3.6 %, p=0.40), fat loss (-6.5±6.7; -7.0±6.4 %, p=0.64), waist circumference (-3.1±6.0; -2.5±5.5 %, p=0.46), total CHL (-5.7±18; -5.3±19 %, p=0.75), or HDL (-3.8±20; -1.8±18 %, p=0.23). Subjects in the HP group tended to lose more weight (p=0.10) and had a greater reduction in TG (p=0.004). No time x MS x diet interactions were observed. Results revealed that exercise and diet promoted favorable changes in markers of MS; individuals with MS may experience greater benefits; and, a HP diet may promote greater reductions in TG levels.

Supported in part by Curves International Inc. Waco, TX

Rationale

Researchers in the Exercise & Sport Nutrition Laboratory have been conducting a number of studies to assess the safety and efficacy of the Curves fitness and weight loss program. The Curves program involves performing a 30-minute hydraulic resistance circuit training program 3 days per week. For women who would like to lose weight, higher carbohydrate and higher protein diets are offered. Subjects follow a Phase I of the diet for 1-week (1,200 kcals/days) and then a Phase II of the diet (1,600 kcals/day) during the weight loss period. Results of initial studies have shown that the program promotes weight loss, improves markers of health, and improves fitness. A large proportion of women participating in these studies had 3 or more markers of metabolic syndrome as defined by the NCEP-ATPIII. Theoretically, participants who had markers of metabolic syndrome and/or followed the higher protein diets may experience greater benefits. The purpose of this study was to examine whether individuals with 3 or more criteria of metabolic syndrome may experience differential effects of participating in a fitness and weight loss program that involved higher amounts of carbohydrate and protein.

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.
- 396 sedentary women (46±11 yrs, 163±7 cm; 92±18 kg; 45±4% fat) participated in the study
- Subjects were further divided into those with < 3 (n=218) and > 3 (n=178) 3 NCEP-ATPIII criteria for MS

Diet Protocol

- Based on baseline testing, subjects were assigned to:
  - a high carbohydrate (HC) (55% CHO, 15% protein, 30% fat);
  - a high protein diet (HP) (7-15% CHO, 55-63% protein, 30% fat)
- The diets involved consuming 1,200 kcal/d for 1-wk and 1,600 kcal/d for 9 wks.
- Subjects were required to maintain the diet for the duration of the study.

Training Protocol

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

Methods & Procedures

- Body mass, DEXA body composition, anthropometic measurements, and fasting blood samples were obtained at 0 and 10 weeks.
- Subjects were retrospectively divided into those with less than (n=218) or more than (n=178) 3 NCEP-ATP III criteria for MS.

Statistical Analysis

- Data were analyzed by MANOVA with repeated measures using SPSS for Windows version 11.5 software (Chicago, IL) and are presented as means ± SD % change from baseline for each group (non-MS and MS, respectively) at week 10 of the study.

Results

- After 10 weeks, subjects with MS experienced significantly greater changes in fasting glucose (1.2±17; -3.0±15 %, p=0.016), TG (4.2±40; -8.7±30 %, p=0.001), SBP (-0.5±10; -4.3±12 %, p=0.001), and DBP (-1.2±12; -4.1±13 %, p=0.02).
- No differences were seen between groups in weight loss (-3.7±3.6; -4.0±3.6 %, p=0.40), fat loss (-6.5±6.7; -7.0±6.4 %, p=0.64), waist circumference (-3.1±6.0; -2.5±5.5 %, p=0.46), total CHL (-5.7±18; -5.3±19 %, p=0.75), or HDL (-3.8±20; -1.8±18 %, p=0.23).
- Subjects in the HP group tended to lose more weight (p=0.10) and had a greater reduction in TG (p=0.004).

Conclusions

- The Curves fitness and weight loss program promotes favorable changes in markers of MS
- Individuals with MS may experience greater benefits
- Adherence to a HP diet may promote greater reductions in TG levels.

Acknowledgements

We would like to thank Jean Jitomir, Monica Serra, Jen Moreillon, Erika Deike, Geoffrey Hudson, and Mike Greenwood who assisted in data collection on the first cohort of subjects that participated in this study when the ESNL was located at Baylor University.

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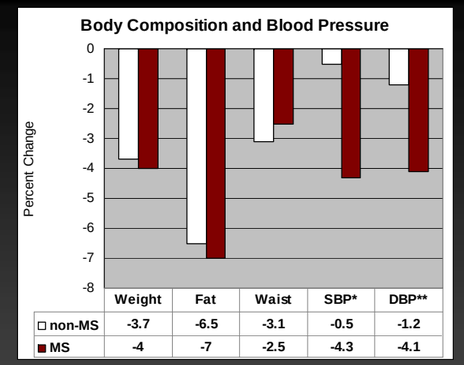
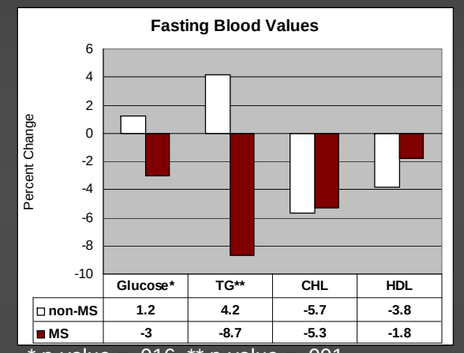
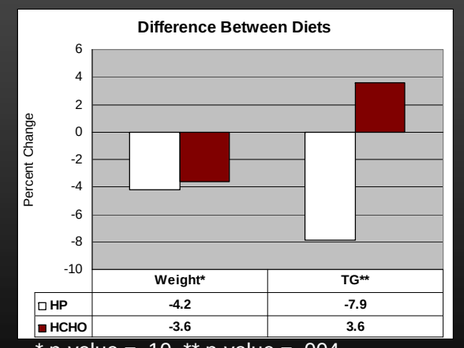


* p-value = .001, ** p-value = .02



* p-value = .016, ** p-value = .001



* p-value = .10, ** p-value = .004

CLINICAL PROFILE OF WOMEN WITH AND WITHOUT METABOLIC SYNDROME (MS)

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Abstract

720 sedentary women (47±12 yrs, 163±7 cm; 92±17 kg; 45±5% body fat) underwent comprehensive clinical assessments prior to participating in an exercise and diet intervention trial. Subjects were divided into those with less than (n=369) or more than 3 NCEP-ATP III criteria for MS (n=336). Data were analyzed by ANOVA and are presented as means ± SD for the non-MS and MS groups, respectively. Subjects who had MS were significantly older (45.3±12; 48.0±11 yrs); had significantly greater weight (88.5±17; 96.0±17 kg), waist circumference (99±16; 107±15 cm), hip circumference (119±13; 123±13 cm), resting heart rate (70±10; 73±11 bpm), SBP (121±12; 131±15 mmHg), DBP (78±8; 84±9 mmHg), bone mineral content (1,767±263, 1,820±251 g), DXA fat mass (37.1±10, 41.2±10 kg), DXA fat free mass (44.9±7, 48.2±7 kg), glucose (93±13, 111±33 mg/dl), TG (107±46, 175±84 mg/dl), total CHL (198±37, 208±45 mg/dl), LDL (116±30, 127±35 mg/dl), CHL:HDL ratio (3.5±0.8, 4.6±1.1), uric acid (4.6±1.1, 5.6±4.3 mg/dl), resting energy expenditure (1,574±271, 1,725±281 kcal/d), and peak SBP (159±23, 168±25 mmHg); and, significantly lower HDL (58±13, 48±12 mg/dl), peak aerobic capacity (6.1±1.3, 5.6±1.1 METs), and peak HR (163±18, 156±19 bpm). Results indicate that a high percentage of women interested in participating in a fitness and weight loss program have 3 or more criteria for MS (47%) and that women with MS have less favorable clinical profiles.

Supported in part by Curves International Inc. Waco, TX

Rationale

Researchers in the Exercise & Sport Nutrition Laboratory have been conducting a number of studies to assess the safety and efficacy of the Curves fitness and weight loss program in sedentary obese women. Baseline assessments have indicated that a large proportion of women participating in these studies had one or more markers of metabolic syndrome as defined by the NCEP-ATPIII. The purpose of the study was to compare the clinical profile of healthy sedentary women to those presenting with three or more criteria for clinical metabolic syndrome as defined by NCEP-ATP III guidelines. This analysis may be helpful in developing clinical norms and determining appropriate clinical interventions.

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.
- 720 sedentary women (47±12 yrs, 163±7 cm; 92±18 kg; 45±5% fat) participated in the study.
- Subjects were further divided into those with < 3 (n=369) and > 3 (n=336) 3 NCEP-ATPIII criteria for MS.

Methods & Procedures

- Body mass, DEXA body composition, anthropometic measurements, and fasting blood samples were obtained prior to participation in an exercise and diet intervention trial.
- Subjects were retrospectively divided into those with less than (n=369) or more than (n=336) 3 NCEP-ATP III criteria for MS.

Statistical Analysis

- Data was analyzed by ANOVA using SPSS for Windows version 11.5 software (Chicago, IL) and are presented as means ± SD for the non-MS and MS groups.

Results

- Subjects who had MS were significantly older (45.3±12; 48.0±11 yrs); had significantly greater weight (88.5±17; 96.0±17 kg), waist circumference (99±16; 107±15 cm), hip circumference (119±13; 123±13 cm), resting heart rate (70±10; 73±11 bpm), SBP (121±12; 131±15 mmHg), DBP (78±8; 84±9 mmHg), bone mineral content (1,767±263, 1,820±251 g), DXA fat mass (37.1±10, 41.2±10 kg), DXA fat free mass (44.9±7, 48.2±7 kg), glucose (93±13, 111±33 mg/dl), TG (107±46, 175±84 mg/dl), total CHL (198±37, 208±45 mg/dl), LDL (116±30, 127±35 mg/dl), CHL:HDL ratio (3.5±0.8, 4.6±1.1), uric acid (4.6±1.1, 5.6±4.3 mg/dl), resting energy expenditure (1,574±271, 1,725±281 kcal/d), and peak SBP (159±23, 168±25 mmHg).
- Subjects who had MS had significantly lower HDL (58±13, 48±12 mg/dl), peak aerobic capacity (6.1±1.3, 5.6±1.1 METs), and peak HR (163±18, 156±19 bpm).

Conclusions

A high percentage of women interested in participating in a fitness and weight loss program have 3 or more criteria for MS. Women with MS have less favorable clinical profiles than healthy sedentary women.

Acknowledgements

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