**Women who participate in a structured weight loss program with resistance-exercise experience more favorable changes in body composition when compared to other popular weight loss programs**

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127 sedentary women (46±12 yr, 45.5±5% body fat, 35.1±5 kg/m2) were randomized to participate in a control group (C) or the Curves Complete® program with online support (CC), Weight Watchers® Points Plus (WW), Jenny Craig® (JC), or Nutrisystem® Advance Select™ (NS) weight loss programs for 12-wks. Body mass, DEXA body composition, and resting energy expenditure (REE) measurements were obtained at 0, 4, 8, & 12 wks and analyzed by MANOVA. Data are presented as changes from baseline after 12-wks. Participants in the diet groups lost similar amounts of body mass (C 0.1±3.1; CC -6.1±3.2; WW -4.3±3.5; JC -5.3±3.8; NS -5.1±4.5 kg, p=0.001). However, participants in the CC group experienced significantly greater loss in fat mass (C -0.0±2.0; CC -5.2±2.8; WW -2.2±2.6; JC -3.5±3.3; NS -2.3±2.5 kg, p=0.001), less loss in FFM (C 0.1±2.3; CC -0.7±2.5; WW -1.8±2.3; JC -1.8±2.1; NS -2.4±2.2 kg, p=0.002), and greater reductions in percent body fat (C -0.1±1.7; CC -3.3±2.3; WW -0.6±2.5; JC -1.4±2.4; NS -0.2±1.7%, p=0.001). REE tended to differ among groups (C 39±190; CC 0±154; WW -108±159; JC -27±206; NS -43±206 kcal/d, p=0.07). Results indicate that participation in the CC program promotes more favorable changes in body composition than other popular weight loss programs.

Supported by Curves International, Waco, TX

**Women who participate in a structured weight loss program with resistance-exercise experience more favorable changes in blood lipids when compared to other popular weight loss programs**

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123 sedentary women were randomized into a control group (C), Curves Complete® (CC), Weight Watchers® (WW), Jenny Craig® (JC), or Nutrisystem® (NS) weight loss program for 12-wks. Fasting blood samples were obtained at 0, 4, 8, & 12 wks. Data are percent changes from baseline. Significant group x time interactions were observed in TG (C -2.2±29, -7.7±26, 0.1±24; CC -27.1±21, -24.2±24, -23.2±20; WW -8.5±32, 1.6±36, -2.7±31; JC 3.3±40, 8.0±34, 15.1±43; NS 6.9±39, 11.2±33, 11.1±29 %, p=0.002) and HDL-c (C 0.6±11, -3.5±10; -5.0±10; CC -0.8±11, 0.3±11, 5.0±15; WW -5.1±12, -4.0±13, 0.2±14; JC -10.9±12, -6.4±14, -5.0±16; NS -6.2±14, -6.5±12, -4.0±13 %, p=0.01). Total CHL tended to differ among groups (C 0.6±12, -0.3±12; -2.2±11; CC -11.8±11, -9.1±9, -7.5±11; WW -5.8±12, -2.8±12, 0.6±12; JC -7.2±13, -3.3±13, -2.3±11; NS -4.9±13, -4.5±12, -3.8±16 %, p=0.07). No differences were observed among groups in LDL-c (C -1.9±18, 1.7±23; -4.0±17; CC -11.1±15, -9.2±13, -7.8±19; WW -1.4±20, 1.6±23, 10.4±51; JC -6.5±17, -1.7±17, -2.7±12; NS -4.6±18, -5.5±14, -6.1±21 %, p=0.21) or blood glucose (C 1.7±8, 2.6±6; -1.3±8; CC -2.2±10, -1.9±8, -2.4±12; WW -1.5±12, -1.1±9, -1.7±8; JC -3.3±9, -2.4±11, -1.6±10; NS -0.8±16, -3.2±14, -2.9±16 %, p=0.91). Results reveal a high protein/low fat weight loss program with resistance-training promotes more favorable changes in blood lipids compared to some other popular weight loss programs.

**Effects of participation in popular weight loss and fitness programs on markers of health and fitness in women**

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125 sedentary women (46±12 yr, 45.5±5% body fat, 35.0±5 kg/m2) were randomized to participate in a control group (C) or Curves Complete® (CC), Weight Watchers® (WW), Jenny Craig® (JC), or Nutrisystem® (NS) weight loss programs for 12-wks. Participants in the diet groups were encouraged to exercise (WW, JC, NS) while those in the CC group participated in a structured exercise program. Data were analyzed by MANOVA or ANOVA and are presented as changes from baseline after 12-wks. Participants in the diet groups had greater changes in waist (C 2.1±6.9; CC -4.7±3.2; WW -4.1±5.7; JC -3.7±3.6; NS -3.3±6.4 %, p=0.001) and hip circumference (C 0.7±2.5; CC -4.0±2.6; WW -2.5±2.4; JC -4.2±3.5; NS -3.6±3.5 %, p=0.001). Resting HR (-2.5±9 %, p=0.005) and SBP (-4.0±12 %, p=0.005) decreased over time with no change in DBP. SBP decreased more in some diet and exercise groups compared C ($p<0.05$). Changes in PAC (C -2.2±10; CC 14.4±10; WW 7.9±19; JC 8.1±11; NS 3.8±7 %, p=0.001) and 1 RM bench press (C -1.2±14; CC 6.0±12; WW 4.9±15; JC 5.4±14; NS -3.7±15 %, p=0.06). Results indicate diet and exercise programs promote improvements in fitness and the CC program promotes greater changes in aerobic capacity.

**Effects of participation in popular weight loss and fitness programs on insulin and leptin in women**

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100 sedentary women (46±11 yr, 45.8±5% body fat, 35.2±5 kg/m2) were randomized to participate in a no diet or exercise control group (C) or the Curves Complete® 90-day Challenge (CC), Weight Watchers® Points Plus (WW), Jenny Craig® (JC), or Nutrisystem® Advance Select™ (NS) weight loss programs for 12-wks. Participants in the diet groups were encouraged to exercise (WW, JC, NS) while those in the CC group participated in a structured circuit-style resistance training (3 d/wk) and walking (3 d/wk) program. Fasting blood samples were obtained at 0, 4, 8, & 12 wks. Changes from baseline to 12-wks intervention for fasting insulin, the glucose to insulin ratio, homeostatic model assessment (HOMA), and leptin were analyzed by one-way ANOVA. Participants in the CC group tended to experience greater changes in fasting insulin (C 0.8±6.9; CC -7.5±14; WW -2.9±8.1; JC -3.8±6.3; NS -1.2±8.3 uIU/ml, p=0.10), the glucose to insulin ratio (C -1.3±4.1; CC 7.0±14; WW 3.3±5.4; JC 4.8±7.4; NS -6.0±21, p=0.01), HOMA (C 0.1±1.6; CC -2.3±4.4; WW -0.8±1.7; JC -1.0±1.9; NS -0.4±2.2, p=0.07) and leptin (C 4.3±16; CC -17.9±21; WW -13.0±16; JC -12.2±25; NS -3.5±26 ng/ml, p=0.03) compared to some of the other diet and exercise interventions. Results indicate that participation in different diet and exercise programs may have variable effects on markers of insulin resistance and leptin.

Supported by Curves International (Waco, TX)

**Adding access to online meal plans and monitoring to a structured weight loss program with resistance-exercise promotes more positive changes in triglycerides**

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48 sedentary women (44.8±10 yr, 44.8±4% body fat, 33.9±6 kg/m2) were randomized to participate in the Curves Complete® weight loss and exercise program for 12-wks with (CC-OS) and without (CC-NS) online support that provided access to meal plans and progress monitoring. Fasting blood samples were obtained at 0, 4, 8, & 12 wks and analyzed by MANOVA. Data are presented as changes from baseline after 4, 8, and 12 wks for the CC-OS and CC-NS groups, respectively. Overall MANOVA analysis revealed a significant time (p=0.001) difference with no significant group x time effects (p=0.57). Univariate analysis revealed significant time effects for TG, CHL, HDL, and LDL and that participants in the CC-OS group experienced greater changes in TG (CC-OS -27.1±21, -24.2±24, -23.2±20; CC-NS 0.9±29, -6.1±22, -6.7±26 %, p=0.001) with no differences observed among groups in total CHL (CC-OS -11.8±11, -9.1±9, -7.5±11; CC-NS -6.0±10, -4.0±11, -3.6±10 %, p=0.17), HDLc (CC-OS -0.8±11, 0.3±11, 5.0±15; CC-NS -3.4±9, -0.1±13, 2.5±15 %, p=0.78), LDLc (CC-OS -11.1±15, -9.2±13, -7.8±19; CC-NS -7.4±15, -6.6±16, -4.7±11 %, p=0.83) or blood glucose (CC-OS -2.2±10, -1.9±8, -2.4±12; CC-NS 1.2±14, 1.6±12, -0.6±15 %, p=0.75). Results indicate that adding online access to meal plans and monitoring can promote more favorable changes in TG during a structured weight loss program with resistance-based exercise.

**Adding access to online meal plans and monitoring improves success to a structured weight loss program with resistance-exercise in women**

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51 sedentary women (44.5±10 yr, 44.9±4% body fat, 34.0±6 $kg/m^2$) were randomized to participate in the Curves Complete® weight loss and exercise program for 12-wks with (CC-OS) and without (CC-NS) online support that provided access to meal plans and progress monitoring. Body mass, DEXA body composition, and resting energy expenditure (REE) measurements were obtained at 0, 4, 8, & 12 wks and analyzed by MANOVA. Data are presented as changes from baseline after 4, 8, and 12 wks for the CC-OS and CC-NS groups, respectively. Overall MANOVA revealed that both groups experienced improvements in body composition with minimal effects on REE. An overall significant interaction was observed among groups (p=0.02). Participants in the CC-OS group tended to experience more favorable changes in body mass (CC-OS -2.6±1.3, -4.8±2.3, -6.2±3.3; CC-NS -2.2±1.9, -3.5±3.1, -4.3±4.3 kg, p=0.08) and fat mass (CC-OS -1.8±1.8, -3.5±2.3, -5.2±2.9; CC-NS -2.0±2.4, -3.4±2.8, -3.8±4.0 kg, p=0.11), while FFM was preserved to a greater degree in the CC-NS group (CC-OS -0.8±1.6, -1.2±2.1, -0.8±2.5; CC-NS 0.0±1.5, 0.2±1.6, -0.2±2.0 kg, p=0.05). No significant differences were seen among groups in percent body fat (CC-OS -0.9±1.8, -1.9±2.4, -3.3±2.3; CC-NS -1.5±2.3, -2.5±2.5, -2.7±3.4 %, p=0.21) or REE (CC-OS -47±144, -23±176, 0.4±154; CC-NS -83±174, -65±184, -102±170 kcals/d, p=0.16). Results indicate that adding online access to meal plans and monitoring can promote more favorable changes in body composition while maintaining REE.

**Adherence to a high protein and low fat energy-restricted diet while participating in a circuit resistance-exercise program promotes fat loss with no loss in fat free mass in post-menopausal women**

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41 sedentary women (55.3±10 yr, 45.0±4% body fat, 33.7±5 kg/m$^2$) were randomized to participate in a control group (C) or the Curves Complete® (CC) weight loss and circuit resistance-exercise program for 12-wks. Participants in the CC program followed an energy-restricted diet (30% C, 45% P, and 25% F) while participating in a circuit resistance-training (3 d/wk) and walking (30 min, 3/d wk) program. Body mass, DEXA body composition, and resting energy expenditure (REE) measurements were obtained at 0, 4, 8, & 12 wks and analyzed by MANOVA. Data are presented as changes from baseline after 4, 8, and 12 wks for the C and CC groups, respectively. Participants in the CC program lost significant amounts of body mass (C -0.05±1.6, -0.1±2.2, 0.1±3.1; CC -2.1±1.7, -3.1±2.6, -3.9±3.2, kg, p=0.001), fat mass (C -0.0±2.2, 0.2±2.3, -0.0±2.0; CC -2.2±1.4, -2.8±2.0, -4.1±2.4 kg, p=0.001) and body fat (C 0.1±1.7, 0.3±1.7, -0.1±1.7; CC -1.8±2.1, -2.2±2.3, -3.5±2.5 %, p=0.001) than controls with no time (p=0.54) or group x time effects on FFM (C -0.1±1.4, -0.1±1.7, 0.1±2.3; CC 0.2±1.8, 0.1±1.9, 0.5±1.6 kg, p=0.89). REE tended to differ among groups (C -20±149, 17±180, 39±190; CC -30±140, -65±169, -85±130, kcal/d, p=0.03). Results indicate that post-menopausal women who participate in an energy deficit higher protein and low fat diet with resistance-exercise can promote fat loss without loss of FFM.

**Adherence to a high protein and low fat energy-restricted diet while participating in a circuit resistance-exercise program promotes positive changes in blood glucose and lipids in post-menopausal women**

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41 sedentary women (55.6±10 yr, 45.0±4% body fat, 33.7±5 kg/m2) were randomized to participate in a control group (C) or the Curves Complete® (CC) weight loss and circuit resistance-exercise program for 12-wks. Participants in the CC program followed an energy-restricted diet (30% C, 45% P, and 25% F) while participating in a circuit resistance-training (3 d/wk) and walking (30 min, 3/d wk) program. Fasting blood samples were obtained at 0, 4, 8, & 12 wks and analyzed by MANOVA. Data are presented as changes from baseline after 4, 8, and 12 wks for the C and CC groups, respectively. Overall MANOVA analysis revealed a significant time (p=0.004) and group x time (p=0.002) differences. Univariate analysis revealed significant time effects for TG, CHL, and LDL and that participants in the CC group experienced significantly different changes in blood glucose (C 1.7±8, 2.6±6, -1.3±8; CC 0.6±8, -3.2±6, -0.8±7 %, p=0.04) and CHL (C 0.6±12, -0.3±12, -2.2±11; CC -11.2±11, -9.5±10, -11.2±9 %, p=0.005) with no significant differences in TG (p=0.14), HDLc (p=0.37) or LDLc (p=0.11). Results indicate that adherence to a high protein and low fat energy restricted diet while participating in a resistance-based circuit training program promotes favorable changes in blood glucose and some blood lipids in post-menopausal women.

**Effects of nutrient timing following resistance-exercise on changes in body composition in post-menopausal women participating in weight loss program**

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21 sedentary women (59.8±5 yr, 43.7±3% body fat, 31.0±3 kg/m2) followed Curves Complete® energy-restricted diet (30% C, 45% P, and 25% F) while participating in a circuit resistance-training (3 d/wk) and walking (30 min, 3/d wk) program for 12-wks. Participants ingested a drink containing 15g of protein immediately following (I) or 2-hr after (D) exercise as part of their diet. Data were analyzed by MANOVA and are presented as changes from baseline after 12 wks for the I and D groups, respectively. While significant time effects were seen in body mass, fat mass, and body fat; no significant group x time effects were observed. However, participants in the D group generally experience more favorable changes in body mass (I -3.6±2.2; D -4.2±4.2, kg, p=0.59), fat mass (I -3.5±1.5; D -4.8±3.3, kg, p=0.32), FFM (I -0.0±1.7; D 1.1±1.3, kg, p=0.24), and body fat (I -2.8±1.9; D -4.4±3.1 %, p=0.25). No differences were seen among groups in REE (I -82±126; D -90±142 kcal/d, p=0.34). Additional research should examine whether nutrient timing affects training adaptations in post-menopausal women who participate in an energy deficit higher protein and low fat diet with resistance-exercise.