

Effect of Two Lifestyle Interventions on Glycemic Control and Weight in Adults over 50 with obesity in Alabama

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Background

Obesity and its associated comorbidities are prevalent among individuals aged 50 and older, particularly within underserved states such as Alabama. These demographic factors increase risks for conditions including type 2 diabetes, cardiovascular disease, and depression, necessitating targeted intervention strategies. This patient-oriented study was designed to evaluate the effects of dietary protein intake and resistance training on the retention of lean body mass (LBM) during weight loss in adults over 50 with Obesity.

Objective

To evaluate the effectiveness of a 16-week structured lifestyle medicine program, incorporating either a high-protein diet or resistance training, on glycemic control, weight, LBM, and psychological well-being in adults with obesity over 50.

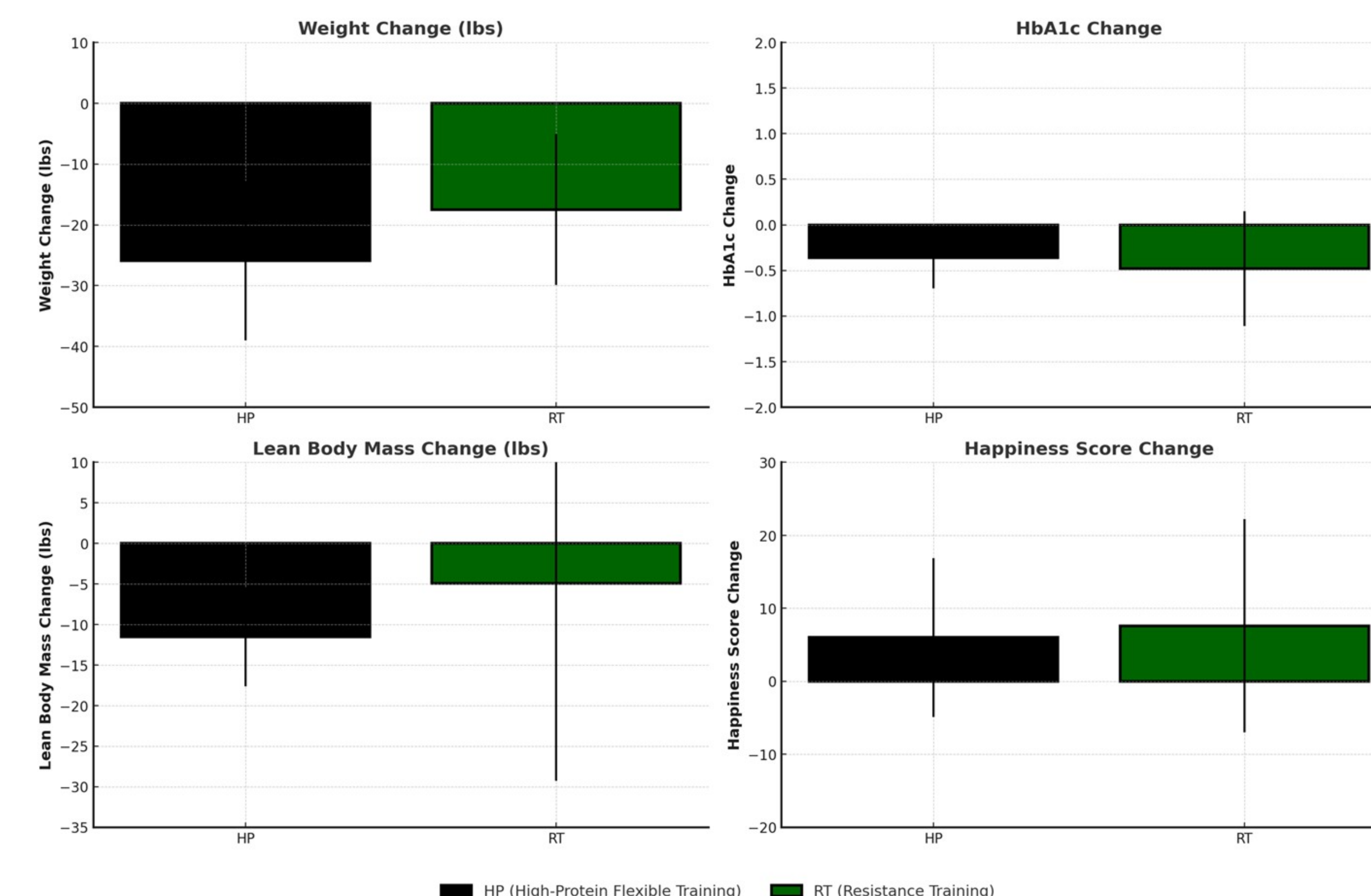
Methods

Fifty participants (BMI >30 kg/m², age >50) were randomly assigned to one of two behavioral weight loss interventions: Health Promotion (HP, high-protein diet with flexibility training) or Resistance Training (RT, standard protein diet with supervised resistance exercise). All participants completed a 16-week online State of Slim program, which included weekly video conference-based group coaching sessions. Key outcomes assessed at baseline and week 16 included hemoglobin A1c (HbA1c), Oxford Happiness Questionnaire score, flexibility (cm), LBM, and weight. Analysis included paired comparisons and ANCOVA adjusting for baseline values

Results

Fifty participants (mean age 62.6±7.6 years; 67.3% female; BMI 37.6±5.7 kg/m²) completed baseline and 16-week assessments. Both the HP and RT intervention arms exhibited statistically significant reductions in HbA1c (HP: -0.42 ± 0.07%; RT: -0.42 ± 0.12%; *p* < 0.05) and improvements in psychological well-being as measured by the Oxford Happiness Questionnaire (HP: +7.84 ± 2.34; RT: +9.00 ± 2.98; *p* < 0.05). Flexibility outcomes did not demonstrate statistically significant changes in either group. Both interventions resulted in clinically and statistically significant reductions in body weight, with greater mean weight loss observed in the HP group (-27.42 ± 2.71 lbs.) compared to the RT group (-18.67 ± 2.36 lbs.). Additionally, the HP group experienced a significant reduction in lean body mass (-10.73 ± 1.23 lbs.), while the RT group showed a more minor, non-significant decrease (-5.59 ± 4.88 lbs.; *N* = 25).

Effects of High-Protein Flexible Training (HP) vs Resistance Training (RT)



Conclusion and Next Steps

Conclusion: Both the HP and RT interventions led to significant improvements in glycemic control and psychological well-being over 16 weeks. While both groups achieved meaningful weight loss, the HP group experienced a greater reduction in body weight but also a significant loss of lean body mass. In contrast, the RT group preserved lean mass more effectively. Flexibility did not improve significantly in either group. These findings suggest that while HP may be more effective for weight reduction, RT offers a potential advantage in preserving muscle mass during weight loss.

Next steps: include evaluating the long-term effects at 52 weeks and exploring implementation strategies for weight management to enhance overall function. These findings may inform treatments for obesity aimed at preserving functional independence in aging populations.