Abstract

OBJECTIVE—To examine the effect of high-intensity progressive resistance training combined with moderate weight loss on glycemic control and body composition in older patients with type 2 diabetes.

RESEARCH DESIGN AND METHODS—Sedentary, overweight men and women with type 2 diabetes, aged 60–80 years (n = 36), were randomized to high-intensity progressive resistance training plus moderate weight loss (RT & WL group) or moderate weight loss plus a control program (WL group). Clinical and laboratory measurements were assessed at 0, 3, and 6 months.

RESULTS—HbA_{1c} fell significantly more in RT & WL than WL at 3 months (0.6 ± 0.7 vs. 0.07 ± 0.8%, $P < 0.05$) and 6 months (1.2 ± 1.0 vs. 0.4 ± 0.8%, $P < 0.05$). Similar reductions in body weight (RT & WL 2.5 ± 2.9 vs. WL 3.1 ± 2.1 kg) and fat mass (RT & WL 2.4 ± 2.7 vs. WL 2.7 ± 2.5 kg) were observed after 6 months. In contrast, lean body mass (LBM) increased in the RT & WL group (0.5 ± 1.1 kg) and decreased in the WL group (0.4 ± 1.0) after 6 months ($P < 0.05$). There were no between-group differences for fasting glucose, insulin, serum lipids and lipoproteins, or resting blood pressure.

CONCLUSIONS—High-intensity progressive resistance training, in combination with moderate weight loss, was effective in improving glycemic control in older patients with type 2 diabetes. Additional benefits of improved muscular strength and LBM identify high-intensity resistance training as a feasible and effective component in the management program for older patients with type 2 diabetes.