

Home-Based Resistance Training Improves Glycemic Control and Body Fat Content in Patients with Type 2 Diabetes Mellitus: Experience from a Tertiary Care Hospital in Sri Lanka

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ABSTRACT

Background: Physical exercise is a key component in management of diabetes. Benefits of aerobic exercise are well established. Role of resistance training is less well studied and data from local setting are limited. We aimed to study the effect of resistance training on glycemic control and body fat. **Methods:** A randomized controlled study was conducted in a diabetes clinic, involving 60 participants with type 2 diabetes mellitus. 30 of them were randomly allocated to resistant training with Thera bands. Routine medical and dietary management were continued in both groups. Glycated hemoglobin A1c (HbA1c), fasting blood glucose (FBG), body mass index (BMI), and body fat percentage (BFP) were measured at baseline and after 4 months. **Results:** Mean age, mean duration of diabetes, baseline HbA1c, FBG, BMI, and BFP of the population were 53.6 years, 11.3 years, 8.8%, 135.0 mg/dL, 26.9 kg/m², and 31.3%, respectively. Resistant training group achieved significant reductions in HbA1c (10.3%, $p=0.001$), FBG (5.9%, $p=0.01$), BMI (4.1%, $p=0.02$), and BFP (6.1%, $p=0.03$), while changes in the control group were insignificant. **Conclusions:** Resistant training improves glycemic control and body weight in short term, in patients with type 2 diabetes mellitus.

Key words: Diabetes, exercise, glycemic control, resistance training

BACKGROUND

Achieving and maintaining optimal glycemic control is the primary goal in the management of diabetes. Main strategies employed to realize this goal are pharmacotherapy, dietary interventions, and physical exercise. Role of aerobic physical exercise in improving glycemic control is well established.^[1] However, patients who are unable to engage in such physical activities are not uncommon among people with diabetes, particularly in the elderly. Resistance training exercise programs which can be done without bearing weight on lower limb joints become a valuable alternative in such people.

Resistance training refers to a form of active exercise in which a dynamic or static muscle contraction is maintained against external resistance. Several recent studies have recognized resistance training as a potentially useful therapeutic tool in the management of diabetes.^[2-4] Importantly, it has also been demonstrated to be safe and efficacious for the elderly and obese individuals^[2] and is recommended by American College of Sports Medicine to be included in an exercise program for people with diabetes.^[5] Similar to aerobic exercise, resistance training has been reported to enhance insulin sensitivity, daily energy expenditure, and quality of life.^[6]

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