

A Randomized Controlled Trial of Resistance Exercise Training to Improve Glycemic Control in Older Adults With Type 2 Diabetes

Castaneda, Carmen; Layne, Jennifer E; Munoz-Orians, Leda; Gordon, Patricia L; Walsmith, Joseph; Foldvari, Mona; Roubenoff, Ronenn; Tucker, Katherine; Nelson, Miriam

OBJECTIVE:

To determine the efficacy of high intensity progressive resistance training (PRT) on glycemic control in older adults with type 2 diabetes, the researchers performed a 16-week randomized controlled trial. Sixty-two Latino older adults (40 women and 22 men; age 66+/- 8 years) with type 2 diabetes were randomly assigned to supervised PRT along with standard care, or a control group who received only standard care. Glycemic control, metabolic syndrome abnormalities, body composition, and muscle glycogen stores were determined before and after the intervention.

RESULTS:

Sixteen weeks of PRT (3Xs/week) resulted in reduced plasma glycosylated hemoglobin levels (approximately 8.7 to 7.6), increased muscle glycogen stores (approximately 60.3 to 79.1), and reduced the dose of prescribed diabetes medication in 72% of exercisers. Control subjects showed no change in glycosylated hemoglobin, a reduction in muscle glycogen (approximately 61.4 to 47.2) and a 42% increase in diabetes medications. PRT subjects versus control subjects also increased lean mass, systolic blood pressure, and decreased trunk fat mass.

CONCLUSIONS:

PRT as an adjunct to standard of care is feasible and effective in improving glycemic control and some of the abnormalities associated with the metabolic syndrome among high-risk older adults with type 2 diabetes.

SUMMARY:

This study demonstrates that high intensity PRT is effective in the management of diabetes in a high-risk population of older adults with poor glycemic control. Resistance training significantly improved glycemic control, increased fat free mass, reduced the requirement for diabetes medications, reduced abdominal fat and systolic blood pressure, and increased muscle strength and spontaneous physical activity.

KEISER PIECES USED:

Chest press, leg press, upper back, knee extension, knee flexion

Published in Diabetes Care, Volume 25, number 12, December 2002