

Eli's Rehab Report

Clinical Rehab Roundup: High-Force Eccentric Resistance Training Shows Promise for Diabetes Cases

"Comparison of combined aerobic and high-force eccentric resistance exercise with aerobic exercise only for people with type 2 diabetes mellitus." Marcus RL, Smith S, Morrell G, Addison O, Dibble LE, Wahoff-Stice D, Lastayo PC. Phys Ther. 2008 Nov;88(11):1345-54. Epub 2008 Sept 18. Researchers at the University of Utah's Department of Physical Therapy and Sport Science compared the outcomes between a diabetes exercise training program using combined aerobic and high-force eccentric resistance exercise and a program of aerobic exercise only. Fifteen participants with type 2 diabetes mellitus (T2DM) participated in a 16-week supervised exercise training program: seven in a combined aerobic and eccentric resistance exercise program (AE/RE group) and eight in a program of aerobic exercise only (AE group). Outcome measures included thigh lean tissue and intramuscular fat (IMF), glycosylated hemoglobin, body mass index (BMI), and six-minute walk distance.

Findings: Significant improvements occurred in long-term glycemic control, thigh composition, and physical performance in both groups after participating in a 16-week exercise program, but subjects in the AE/RE group demonstrated additional improvements in thigh lean tissue and BMI. Improvements in thigh lean tissue may be important in this population as a means to increase resting metabolic rate, protein reserve, exercise tolerance, and functional mobility, researchers concluded.

"Although aerobic exercise is what is typically recommended for treating people with diabetes, this study shows that adding a high-force strength training component has significant advantages," said **Robin L Marcus, PT, PhD, OCS**, assistant professor at the University of Utah's Department of Physical Therapy and the study's lead researcher. "As people age, they lose muscle mass and, subsequently, mobility, resulting in a greater risk of falls. Adding resistance training to the diabetes treatment regimen leads to improved thigh lean tissue which, in turn, may be an important way for patients to increase resting metabolic rate, protein reserve, exercise tolerance, and functional mobility," she noted in a press release from the American Physical Therapy Association.