

## Efficiency of vibration exercise for glycemic control in type 2 diabetes patients

Klaus Baum<sup>1</sup>, Tim Votteler<sup>2</sup>, Jürgen Schiab<sup>2</sup>

1. Institut für Physiologie und Anatomie, Deutsche Sporthochschule Köln, Germany and Trainingsinstitut Prof. Dr. Baum GmbH, Köln, Germany

2. Trainingsinstitut Prof. Dr. Baum GmbH, Köln, Germany

### Abstract

Although it is well documented that persons suffering from diabetes type 2 profit from muscular activities, just a negligible amount of patients take advantage of physical exercises. During the last decade, vibration exercise (VE) could be established as an effective measure to prevent muscular atrophy and osteoporosis with low expenditure of overall exercise-time. Unfortunately, little is known about the metabolic effects of VE. In the present study we compared VE with the influence of strength training and a control group (flexibility training) on glycemic control in type 2 diabetes patients. Forty adult non-insulin dependent patients participated in the intervention. Fasting glucose concentration, an oral glucose tolerance test (OGTT), haemoglobin A1c (HbA1c), the isometric maximal torque of quadriceps muscles, and endurance capacity were evaluated at baseline and after 12 weeks of training with three training sessions per week. The main findings are: Fasting glucose concentrations remain unchanged after training. The area under curve and maximal glucose concentration of OGTT were reduced in the vibration and strength training group. HbA1c values tended to decrease below baseline data in the vibration training group while it increased in the two other intervention groups. These findings suggest that vibration exercise may be an effective and low time consuming tool to enhance glycemic control in type 2 diabetes patients.

**Keywords:** diabetes, vibration exercise, strength training, HbA1c, glycemic control