**The effect of supplementary EMS training on body composition and cardiac risk factors in elderly men with metabolic syndrome.**

KEMMLER, W. / BIRLAUF, A. / VON STENGEL, S., University of Erlangen-Nürnberg 2009).

**Objective**

Sarcopenia (loss of skeletal muscle mass and strength) and abdominal obesity are closely connected with mortality, multi-morbidity and frailty in elderly people. The study aimed to find out how full body electromysostimulation (EMS) training impacts on body composition and cardiac risk factors in elderly men with metabolic syndrome (risk factors for cardiovascular disease and diabetes).

**Methodology**

28 men with metabolic syndrome were randomly (50/50) divided into a control group and an EMS group. The 14-week training regime of the EMS group included a 30-minute endurance and strength training every five days using the EMS program. At the same time, the control group carried out full body vibration training. The primary measurements were a reduction in abdominal body fat percentage and the appendicular skeletal muscle mass (ASMM). Secondary measurements were changes to parameters of the metabolic syndrome according to IDF (waist circumference, glucose, triglyceride, HDL-cholesterol and systolic and diastolic blood pressure).

**Results**

Using a high electrical strength, the change in abdominal fat mass showed significant differences between the EMS and control group with the EMS group lowering abdominal fat mass quicker. Parallel to this, the body fat percentage decreased more in the EMS group than in the control group. The ASMM also showed significant differences between EMS group and control group, in favour of the EMS group. Even though there was a significant difference in the waist circumference of the two groups (EMS: -5,2±1,8 cm, vs. CG: -3,3±2,9 cm) there were no further effects on decreasing the metabolic syndrome.

**Conclusion**

Fullbody EMS training leads to significant effects on body composition of elderly people, which occur already after a short training period (45 min/week) and a short intervention period (14 weeks). Therefore, EMS training is a valuable alternative to conventional training methods for people with low cardiac and orthopaedic strength.

Copyright 2010 miha bodytec GmbH - Gubener Str. 13½ - 86156 Augsburg - Tel.: +49 (0)821 45 54 92 – 0 (Right of use, Copyright, Copyright note)