

## **Electromyostimulation (EMS) used in cardiac patients.**

### **Will EMS training become important for secondary prevention?**

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#### **Objective**

The idea that moderate endurance training improves chronic cardiac insufficiency (CHI) as a secondary prevention has been sufficiently validated. But in reality, experience has shown that only few well-instructed, highly motivated and mostly younger patients are prepared to commit to a constant supplementary therapy. The experiences with full body electromyostimulation (EMS) used in cardiac patients show a great and unexpected potential regarding the regeneration of neurohumoral, inflammatory and skeletal muscle related symptoms within the framework of the systemic disease CHI.

#### **Methodology**

15 patients diagnosed with CHI completed a 6-month EMS training programme using Miha bodytec machines. The amplitude was chosen by the patients according to their subjective sensation of muscle contraction/pulse sensation at level 8 on a ten-step scale. Before and after the 3 and 6 months of training, the cardiac performance was assessed by means of spiroergometry, electrocardiography (EKG) and echocardiogram. Furthermore, the metabolic status including creatine kinase (CK) and laktatedehydrogenase (LDH) and the patient's weight and body fat distribution was determined (impedance scale).

#### **Results**

An increase of up to 96% in oxygen uptake at the individual's anaerobic threshold could be proven. The diastolic blood pressure lowered significantly; muscle mass increased up to 14% while the body weight remained constant. The patients all stated that they felt a profound increase in performance capacity.

#### **Conclusion**

The study shows for the first time the effect of EMS-training on cardiac insufficiency patients. The improvements on objective performance, optimization of muscles strength, physiology and metabolic rates exceeded the results of conventional aerobic training methods within the scope of primary and secondary cardiac rehabilitation in CHI patients by far. In conclusion, EMS training has a high potential for therapy of chronic cardiac insufficiency.