THE EFFECTS OF WHOLE BODY ELEKTROMYOSTIMULATION (WB-EMS) TRAINING IN COMPARISON TO A MULTIMODAL LOW BACK PAIN CONCEPT – A CLINICAL INTERVENTION TRIAL IN PATIENTS WITH CHRONIC BACK PAIN

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INTRODUCTION: Chronic non-specific back pain (NSCBP) is the worldwide leading chronic disease, it is the number one cause for years lived with disability (disability-adjusted life-years) (1). According to present guidelines, active exercise is the preferred treatment of NSCBP. Because of lag of time and bodily limitations, the lifestyle of NSCBP patients mostly does not include exercise. Whole body electromyostimulation (WB-EMS) is a safe, joint-friendly, and time-effective training method, that may be effective for NSCBP-patients (2). In this clinical prospective, controlled study, two different therapeutic approaches were compared on back pain patients. One group received a 20 minutes WB-EMS once a week. A active control group (ACG) received a multimodal low back pain program. A passive control group (PCG) included healthy subjects without back pain.

METHODS: Pain and disability scores were set as primary outcome. Therefore in all groups, the following measurements were performed: North American Spine Society Instrument (NASS), Numeric Rating Scale (NRS) and Oswestry Disability Index (ODI). As secondary outcome biomechanical measurements, depression score and quality of life scores were assessed: MFT S3 check; Leonardo Stair (SC); Leonardo force plate with Trunk Rise test (TRT), single 2 leg jump (s2lJ) and the chair rising test (CRT), SF 36 survey and Hospital Anxiety and Depression Scale (HADS). In the intervention group measurements have been carried out at the following times: T0: baseline; T1: after 6 weeks; T2: after 12 weeks and T3: 24 weeks after the start. In the therapeutic control group T0 was carried out before beginning and T1: after 4 weeks.

RESULTS: 162 Subjects were includes to the study: 128 patients NSCBP, 85 allocated in the WB-EMS group and 43 in the ACG. 34 Subjects enrolled in the passive healthy control group (PCG). The average age was 58,6 years (18-86 years). In EMS group the NRS (1-10) improved statistically and clinically significant by 2 points, The ODI achieved 19,7 points reduction in disability. The NASS and all but the social role functioning score of the SF 36 improved significantly. In the ACG only the total relative force of TRT, the CRT and relative and average power of SC improved.

CONCLUSION: The WB-EMS-program showed a considerable reduction of the backpain induced disability and clinical significant reduction of pain intensity. Therefore WB-EMS may be seen as effective and, with a training time of 20 min./week, very time-efficient alternative to established multimodal treatment.

(1) Vos et al. (2015) Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries.

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