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## **The Influence of Sports Climbing (SC) on Self-efficacy, Self esteem and Depression in patients with Multiple Sclerosis**

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### **Purpose**

Multiple Sclerosis (MS) is a chronically, progressive disease with a highly social-medical importance. In Germany about 120.000 employable adults suffer from MS. Even though research on immunomodulation drugs develops fast, there is still no cure to MS. Following Turner et al (2009) a key-point to enhance psycho-social constitution and quality of life in patients with MS is the facilitation of physical activity. The aim of this study was to investigate if SC improves self esteem, self-efficacy and depression in patients with MS.

### **Patients and Methods**

This study consisted of 27 patients (17 f/10 m, mean age 45.8 ( $\pm$ 7.2)), randomized into SC-group [n=12] and control-group (CG) [n=15]. The SC-program took place in 20 sessions of 2 hours over 6 month. Inclusion-criteria are 'range 1-6.5 on the Expanded Disability Status Scale (EDSS)' and 'assured diagnoses of MS', exclusion-criteria are 'attendance less 18 sessions' or 'relapse during intervention'. Safety-standards were strictly adhered to. Data were collected pre and post intervention for self-esteem (MSWS = Multidimensionale Selbstwertkala, Schütz/Sellin), self efficacy (SWE = Skala zur allgemeinen Selbstwirksamkeit, Jerusalem/Schwarzer) and depression (ADS-L = Allgemeine Depressionsskala, Hautzinger). Self-reports were used to detect alterations of their physical and mental condition.

### **Results**

For EDSS in SC-group (n=10) we found a significant decrease from 4.6 [SD 1.7] to 4.1 [2.1],  $p=0.068$ , whereas no changes occur in CG (n=14, EDSS 4.2 [1.7]  $p=0.157$ ). Significant changes showed in self efficacy over time, whereas self-esteem and depression did not reveal significant improvements. The mean value for self efficacy increased in SC-group from 25.9 [6.49] to 28.7 [4.52], significant over the time period [ $p = 0.005$ ], whereas results in CG also increased slightly from 28.0 [6.42] to 29.0 [6.18], not significant over time period [ $p = 0.107$ ] neither between groups and time period [ $p= 0.153$ ]. The mean value in self-esteem ascended slightly in the SC group from 51.4 [9.63] to 53.6 [13.1] and descended slightly in the CG 52.5 [11.55.] to 51.36 [10.13]. In depression both groups (n = 18) showed similar results with SC pre 15.5 [12.6], post 10.38 [8.47] and CG pre 14.7 [11.96] post 10.1 [6.88]. None values were significant for self-esteem or depression. Results from self-reports revealed that all of the patients with MS felt "better" after climbing. Depending on individual handicaps they reported a stabilization or enhancement of their symptoms, i.e. more self-esteem, higher motivation or to get easier in contact with others.

### **Conclusions**

Although evident has not shown in all parameters as expected, patients with MS can psychologically benefit from a SC-intervention. Self efficacy, as a more predictive value for short changes, showed significant improvements over time. And subjective self-report was over all positive. This allows demanding for further research on psychologically long term effects of SC on patients with MS, especially for self-esteem and depression.