

Effects of an internet-based at home physical training protocol in persons with Multiple Sclerosis (ms-intakt Study Erlangen)

Background

Numerous studies have shown beneficial effects of exercise in persons with Multiple Sclerosis (pwMS). As shown recently (Motl et al. 2010), using internet technology might treat and supervise pwMS more economically and more individually than conventional interventions, but systematic studies are lacking. Thus, we assessed the feasibility and effectiveness of an internet-based at home physical training protocol (e-Training) in pwMS (EDSS 0-4).

Methods

In a randomized controlled trial (9/2009 - 9/2011), pwMS were allocated to either control group (CG; no treatment) or training group (TG). The TG received internet-based strength (2x/week) and endurance training (1x/week). Participants exercised at home and documented their training sessions via internet. Training protocols were supervised and adjusted by sports therapists.

Assessments at baseline and after 3 months of training included: Isometric muscle strength (knee and trunk flexion/extension), aerobic capacity (VO₂max), lung function (peak expiratory flow PEF), physical activity (Baecke Questionnaire), Quality of Life (HAQUAMS) and Fatigue (WEIMuS).

Outcomes are analysed using MANOVA with the factors time (within-subjects) and group (between-subjects).

Results

We included 126 pwMS at baseline (m: 32, f:94; EDSS: 2,76±0,85; age: 40,8±9,9), of which 107 completed the posttest (dropout 15,1%). Compared to the CG, the TG showed significant improvements in knee flexion (p=.007) and extension (p=.012), but not trunk flexion or extension. Peak expiratory flow increased significantly (p=.035), as well as the sport score of the Baecke Questionnaire (p=.003). There were no intervention effects for VO₂peak, fatigue or quality of life.

Conclusion

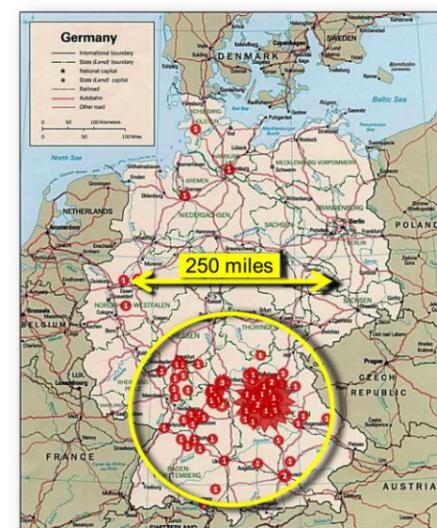
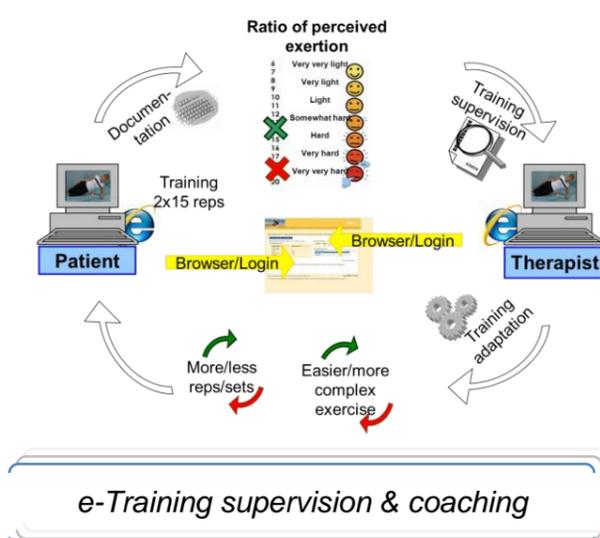
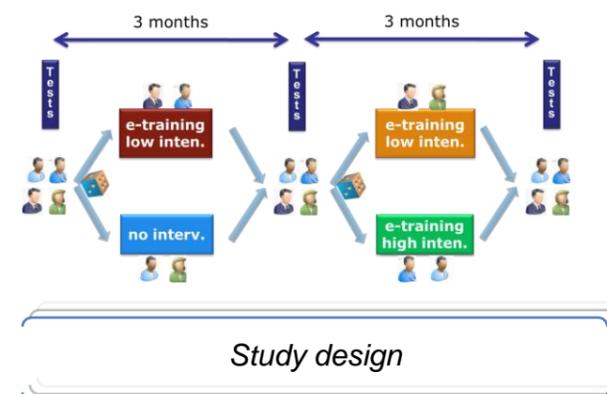
Large sample size and low dropout rate indicate good acceptance and feasibility of the internet intervention. The significant increase in leg strength was comparable in magnitude to supervised strength training. Effects were also significant concerning lung function and sports activity. The absence of effects on VO₂max could be due to the low dose of just one session per week of endurance training. Above-average baseline values concerning both fatigue (considerably below fatigue threshold) and Quality of life could explain the absence of corresponding intervention effects. Effects of exercise on Quality of life was mostly shown in endurance training and group interventions (Motl 2008); both of which does not apply to our study. Further studies should evaluate a higher dose of endurance training and intensive utilization of social network strategies in more fatigued pwMS.

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- Motl, R.; Gosney, J. (2008): Effect of exercise training on quality of life in multiple sclerosis: a meta-analysis. In: *Mult Scler* 14 (1), S. 129–135.

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zu körperlichem Training



e-Training participants & catchment area

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