

week with a facultative mild intensity continuous session. Body composition, blood analysis, cognitive performances, maximal exercise tolerance with gas exchange analysis, non-invasive cardiac output measurement and Near-Infrared Spectroscopy (NIRS) cerebral signals were measured before and after training. **Results.**— We found significant improvements in maximal power and VO_2max , a decrease in maximal heart rate without other hemodynamic changes. Weight, BMI, fat mass, and waist circumference significantly decreased ($P < 0.01$), whereas no effects on biological parameters, nor on muscle mass were observed. Some cognitive tests for executive functions (Digit Symbol Substitution Test, $P < 0.01$; Digit span, $P < 0.05$) and memory (Rey Auditory Verbal Learning Test, $P = 0.03$) significantly improved. Regarding the kinetics of the NIRS signals during exercise, both deoxyhemoglobin (HHb) and hemoglobin difference between oxy- and deoxyhemoglobin (HbDiff) had higher amplitudes after training ($P < 0.05$).

Conclusion.— In addition to improvements in exercise tolerance, a program combining HIIT and resistance training could improve executive functions in overweight adults. These results were associated with changes in cerebral oxygenation measured using NIRS.

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Short- and long-term effect of an aerobic training programme on gait parameters in the chronic hemiplegic patient

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Keywords: Chronic stroke; Aerobic training

Objective.— Aerobic training has a short-term effect on gait parameters in chronic hemiparetic patients [1]. The long-term effects are not known. The objective of this work was to analyse the time course of hemiparetic gait at more than 1 year.

Material/Patient and methods.— Retrospective study.

Twenty-seven chronic stroke survivors with residual autonomous hemiparetic gait participated in a programme of aerobic training > 6 months after stroke. Seventeen patients were seen again at more than 1 year. They were evaluated at T = 0, T = 4 weeks and T > 1 year by a 6-minute walk (TDM6), a 10-meter test with maximal speed (10 m), and a get up and go test (GUG). Statistics: non-parametric tests (Friedman, Wilcoxon, Mann and Whitney).

Results.— There was a statistically and clinically significant improvement of TDM6, 10 m and GUG at 4 weeks with a residual effect at more than 1 year in spite of a significant change of the TDM6 between the end of the programme and at more than 1 year.

Discussion.— This study shows the very positive effects of a programme of aerobic training on gait parameters in the chronic stroke population. The goal is to maintain regular adapted physical activity at sufficient intensity at home to preserve the maximal benefit of the training programme. A therapeutic educational programme and an inpatient-outpatient network will improve the

maintenance of aerobic capacity while sustaining an adapted level of physical activity.

Reference

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Usefulness of physical reconditioning using stationary bike at home on fatigue for multiple sclerosis patients

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Keywords: Multiple sclerosis; Exercise; Fatigue

Objective.— To measure the impact at 2 months time of stationary bike home training on fatigue among under 50 years old multiple sclerosis patients [1].

Methods.— A multicentre non-randomized pilot study evaluating the feasibility of home stationary bike training was conducted. Patients with MS, complaining of predominant physical fatigue, less than 50 years old, without cardiovascular contra-indications, with an EDSS, without cognitive impairment, or relapse in the last 3 months were included. Patients with musculoskeletal, neurological or cardiovascular impairment not allowing stationary cycling, or without any interest for reconditioning program were excluded. The intervention was a short educational session (one hour time) to use stationary bike (home delivery) at first ventilatory threshold, 25 min per session, 3 sessions per week for 8 weeks long. The primary endpoint was fatigue [2] (EMIF), secondary endpoints qualitative and quantitative compliance, walking speed (7.5 m test) and endurance (6 min walk test), health-related quality of life (SF-36). The number of subjects required was 30. Results 25 patients was finally included and analysed. Home stationary bike program, allowed a significant improvement of fatigue on the total EMIF, walking speed and endurance, without significant effect on the quality of life.

Discussion.— This study demonstrated the feasibility of home stationary bike reconditioning with limited supervision. The main limitations are lack of control group, a limited number of subjects, and low EDSS at baseline. In absence of monitoring, long term effect still unknown.

References

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