Article: EPA-1637
Topic: E01 - e-Poster Oral Session 01: Schizophrenia

EFFECTS OF AEROBIC EXERCISE ON BRAIN STRUCTURE AND FUNCTION IN SCHIZOPHRENIA

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In a recent randomised controlled trial (Exercise-I) the effect of aerobic indoor cycling on hippocampal volume as well as magnetic resonance imaging (MRS) metabolites, neuropsychological and clinical variables an physical fitness were determined comparing patients with multi-episode schizophrenia and healthy controls (Pajonk et al. 2010).

In a subsequent three-armed study (Exercise-II) male and female patients with schizophrenia attending a day hospital program or an outpatient clinic were randomised to either aerobic exercise training (cycling) or playing table football as control group for 3x30 minutes per week over a period of three months. After six weeks of intervention additional cognitive training was conducted (CogPack®, 2x30 minutes per week). All patients were undergoing treatment receiving either first or second generation antipsychotics with no differences in dosage or duration of illness between groups. Cycling at heart rate corresponding to a blood lactate concentration of 1,5-2 mmol/L was performed on standardized bikes in a local gym and the amount of exercise was monitored by measuring power (Watt/kg) heart rate, gas exchange (VO2, carbon dioxide output) and blood lactate levels. In the exercise groups, parameters of physical fitness increased. In schizophrenia patients, negative symptoms, short- and long-term memory, executive function as well as GAF score improved mainly during the intervention period of week 6 up to three months.

Data of the impact of this intervention on brain structure and function as well as clinical and neuropsychological variables in multi-episode schizophrenia will be presented.

https://doi.org/10.1016/S0924-9338(14)78786-3 Published online by Cambridge University Press