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Exercise therapy – a novel approach for substance abuse rehabilitation

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Introduction

Strong evidence had proven the effectiveness of exercise therapy for physical fitness, mental health and cognitive function. Overseas researchers proved exercise could also reduce substance use and increase substance abstinence. However, local data on exercise for substance abuse rehabilitation is lacking.

Objectives

This study aims at evaluating the effect of structured exercise program for physical, mental and cognitive function for rehabilitees in Drug Treatment and Rehabilitation Centers (DTRCs) in Hong Kong.

Methodology

Following the baseline assessments on physical fitness, mental health, cognitive function, drug profile and relapse risk, all subjects received an 8-week aerobic kickboxing training conducted by physiotherapists. Reassessment was done after the completion of exercise program.

Result

From September to December 2013, 23 female subjects (mean age=22.8) were recruited. Poly-substance abusers accounted for 91.3%; in which 78.3%, 39.1% and 34.8% were ketamine-, ice- and cocaine-abusers respectively. For physical fitness, body mass index and waist circumference were well above average with 60.9% and 73.7% respectively. The risk of central obesity increased by 34.6% for subjects admitted to DTRCs for more than 3 months ($p=0.11$). For the post-exercise evaluation, significant improvements were reported on waist circumference ($p=0.000$), peak flow rate ($p=0.001$), sit-up ($p=0.000$), push-up ($p=0.000$), sit-and-reach ($p=0.001$), hexagon jump test ($p=0.000$) and agility ladder test ($p=0.000$). In Chester step test, the estimated VO_{2max} improved from 40.6ml/kg/min to 42.3ml/kg/min after training ($p=0.073$). For mental health, 30.4% of the subjects showed moderate to severe depression in Beck Depression Inventory (BDI) and 21.7% showed anxiety disorder in

Hospital Anxiety and Depression Scale- Anxiety subscale (HADS-Anx). BDI significantly reduced from 14.3 to 10.5 ($p=0.046$) and HADS-Anx reduced from 8.3 to 6.1 ($p=0.101$) after training. For cognitive function assessed by CANTAB tests, 78.3% and 64.3% of the subjects failed episodic visual memory and visual sustained attention tests respectively. Significant improvement in visual memory ($p=0.018$) and an overall improvement in spatial planning ($p=0.202$), rule acquisition and attentional set shifting ($p=0.147$) were revealed. For relapse prevention, significant improvements in Stimulant Relapse Risk Scale ($p=0.021$) and contemplation stage ($p=0.001$) were found. In conclusion, exercise therapy was shown to have a merit for substance abuse rehabilitation. Equally important, it should be considered as an adjunct treatment for relapse prevention. The limitations of this study are small sample size and no control group.