

The Effect of High Intensity by Intervals Training on Plasma Interleukin 13 and Insulin Resistance in Patients with Attention Deficit Hyperactivity Disorder (ADHD)

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Abstract : Attention deficit hyperactivity disorder (ADHD) is characterized by a pervasive pattern of developmentally inappropriate inattentive, impulsive and hyperactive behaviors that typically begin during the preschool ages and often persist into adulthood. This disorder is related to autism and schizophrenia and other psychological disorders and clinical conditions such as insulin resistance and they may operate through common pathways, and treatments used exclusively for one of these conditions may prove beneficial for the others. While ADHD is not fully understood as developmental disorder with an etiopathogeny, but studies show that core symptom of disorder was associated with and increased by the interleukins IL-13, where relation of IL-13 with inattention was notable. Regular exercise improves functions associated with attention deficit hyperactivity disorder (ADHD). However, the impact of exercise on cytokines associated with the disease activity remains relatively unexplored. The aim of this study was to examine the effects of 6 weeks high intensity by intervals training (HIIT) on IL-13 levels and insulin resistance in boys with ADHD. Twenty eight boys with ADHD disease in a range of 12-18 year of old participated in this study as the subject. Subjects were divided into control group (n=10) and training group (n=18) randomly. The training group performed progressive HIIT program, 3 days a week for 6 weeks. The control group was in absolute rest at the same time. The results showed that after six weeks of HIIT, IL-13 decreased in the exercise group and these changes achieved (p= 0.002) statistical significance (p < 0.005). The results suggest HIIT with specific intensity and duration utilized in this study had not significant effect on insulin resistance levels in female patients with ADHD (p=0.39), while the difference in the average control and case group was decreased.

Keywords : attention deficit hyperactivity disorder, interleukin 13, insulin resistance, high intensity by intervals training

Conference Title : ICSEHS 2015 : International Conference on Sport, Exercise and Health Sciences

Conference Location : Kuala Lumpur, Malaysia

Conference Dates : August 24-25, 2015