Effect of exercise intensity on weight changes and sexual hormones (androstenedione and free testosterone) in female rats with estradiol valerate-induced PCOS

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Abstract

Introduction

Weight gain and fat accumulation are predisposing factors of PCOS. Life-style modification, including increasing physical activity, is the first line approach in managing PCOS. The objective of this study is to assess the effect of exercise intensity on weight changes, androstenedione and free testosterone level in female rats with estradiol valerate induced PCOS.

Method and materials

40 female Wistar rats were selected (180 ± 20 g). They had every 2 to 3 consecutive estrous cycles during 12 to 14 days. The study was approved by ethical committee of Jahrom University of Medical Sciences. The first two groups were divided into control (n = 10) and polycystic (n = 30) that were induced PCOS by estradiol valerate injection after 60 days. The polycystic groups were divided into three groups of sham (n = 10), experiment group with low-intensity exercise (pco + l.exe) (n = 10) and experiment group with moderate intensity exercise (pco + m.exe) (n = 10). Exercises were performed during 6 sessions of 60 minutes per week for 8 weeks. (Moderate intensity: 28 m/min-70%–75%VO2Max. Low intensity (20 m/min-50%–55%VO2Max) running at 0 slope, 1 h/day, 6 days/week). ANOVA and LSD test were used for data analysis.

Results

In the present study, no significant differences were found in the decrease of total weights of rats. And also androstenedione level changes in experiment groups were higher compared to control group but no significant differences were found, also free testosterone level was significantly higher than the observer group.

Conclusion

According to weight changes and sexual hormones (Free testosterone and androstenedione) exercise training especially with low intensity may improve symptoms of polycystic ovary syndrome.

Keywords: Exercise intensity, Weight change, Androstenedione, Free testosterone