

# In The Name of God

BY: Maryamosadat miri-Farzaneh Alipour ◉

1-M.S exercise physiology ◉

2-medical student-jahrom university of medical sciences ◉

Sage.med@yahoo.com ◉



**Role of life style change in  
sex hormones in female  
wistar rats overtaken PCOS**

## **introduction:**

**It is certain that infertility is one of the main problems in today's medicine and its rate is increasing from 1955 and 10%–15% of the couples are suffering from that [1].**

**One of the causes of infertility is polycystic ovary syndrome (PCOS). PCOS is the most common endocrine abnormality in premenopausal women.**

**This syndrome is characterized by hyperandrogenism, ovulatory dysfunction, irregular menstrual cycles, imbalance of sex hormones and polycystic ovarian morphology**

# introduction

On the other hand, the importance of exercise and mental health of individuals and society is obvious and is inseparable from the health of body and spirit. Attention to women's exercise as much of their bodies' physiological needs is essential [4]. Physical activity and exercise cause levels of some hormones increase or decrease compared to resting level

  
  
Resim görüntülenmiyor. Bilgisayarınızda resmi açmak için yeterli bellek olmayabilir veya resim bozulmuş olabilir. Bilgisayarınızı yeniden başlatın ve sonra dosyayı yeniden açın. Kırmızı x yine görünürse, resmi silip yeniden eklemeniz gerekebilir.

The aim of this study is to: ○

Assess the effect of exercise intensity on ○  
sexual hormones in female wistar rats  
overtaken PCOS

# Methods and materials

Animals: ○

40 female Wistar rats were selected ( $180 \pm 20$  g). They had every 2 to 3 ○  
consecutive estrous cycles during 12 to 14 day. The rats were selected from  
Shiraz University of medical sciences and were kept in animal house of Jahrom  
University of medical sciences.

The study was approved by ethical committee of Jahrom University of Medical ○  
Sciences

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# Induction of PCOS

4 mg estradiol valrate which was dissolved in 0.2 mg Sesame oil

# Design

Exercises were performed during 6 sessions of 60 minutes per week which lasted 8 weeks.

Moderate intensity: (28 m/min-70%-75%VO<sub>2</sub>Max).

Low intensity (20 m/min-50%-55%VO<sub>2</sub>Max) running at 0 slope, 1 h/day, 6 days/week



# Design

sham

N=10 •

pco+exe.l

N=10 •

pco+exe.m

N=10 •

# Methods

## Measurement

**BioVendor kit was used for measurement of Free testosterone and androstenedione and estrogen,FSH and LH level in ELISA test**

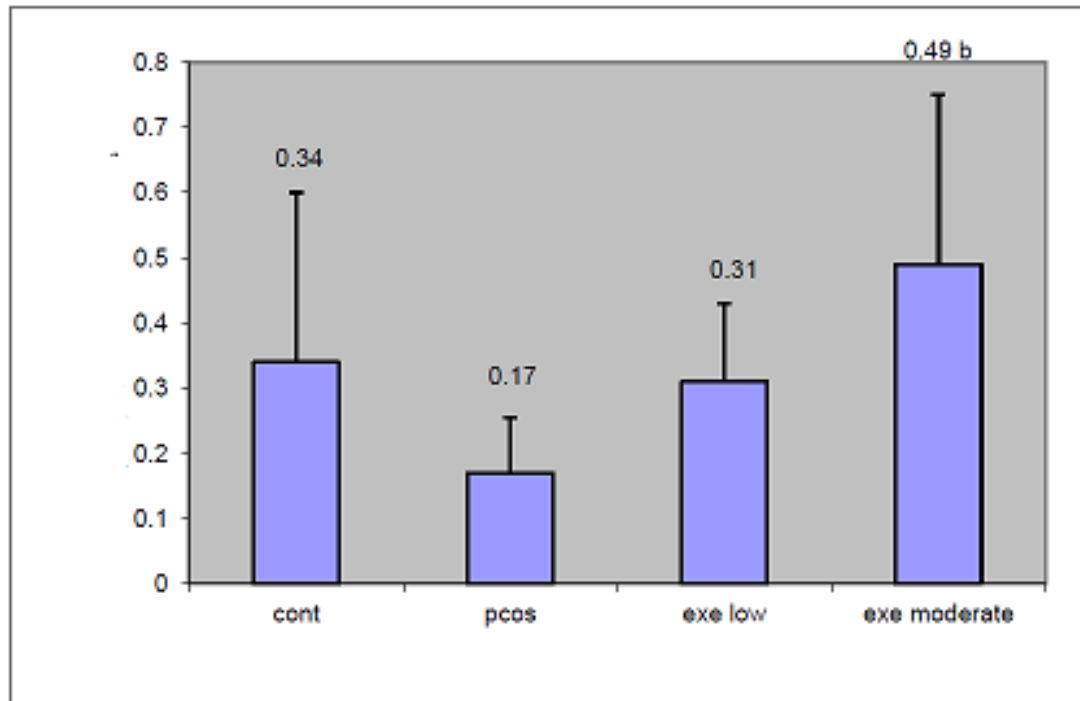
**ANOVA test was used for comparison of mean and Standard deviation of hormones and tukey test for multi comparison of different groups was used in the studying groups ( $p < 0.05$ ) was considered as significant difference.**

# results

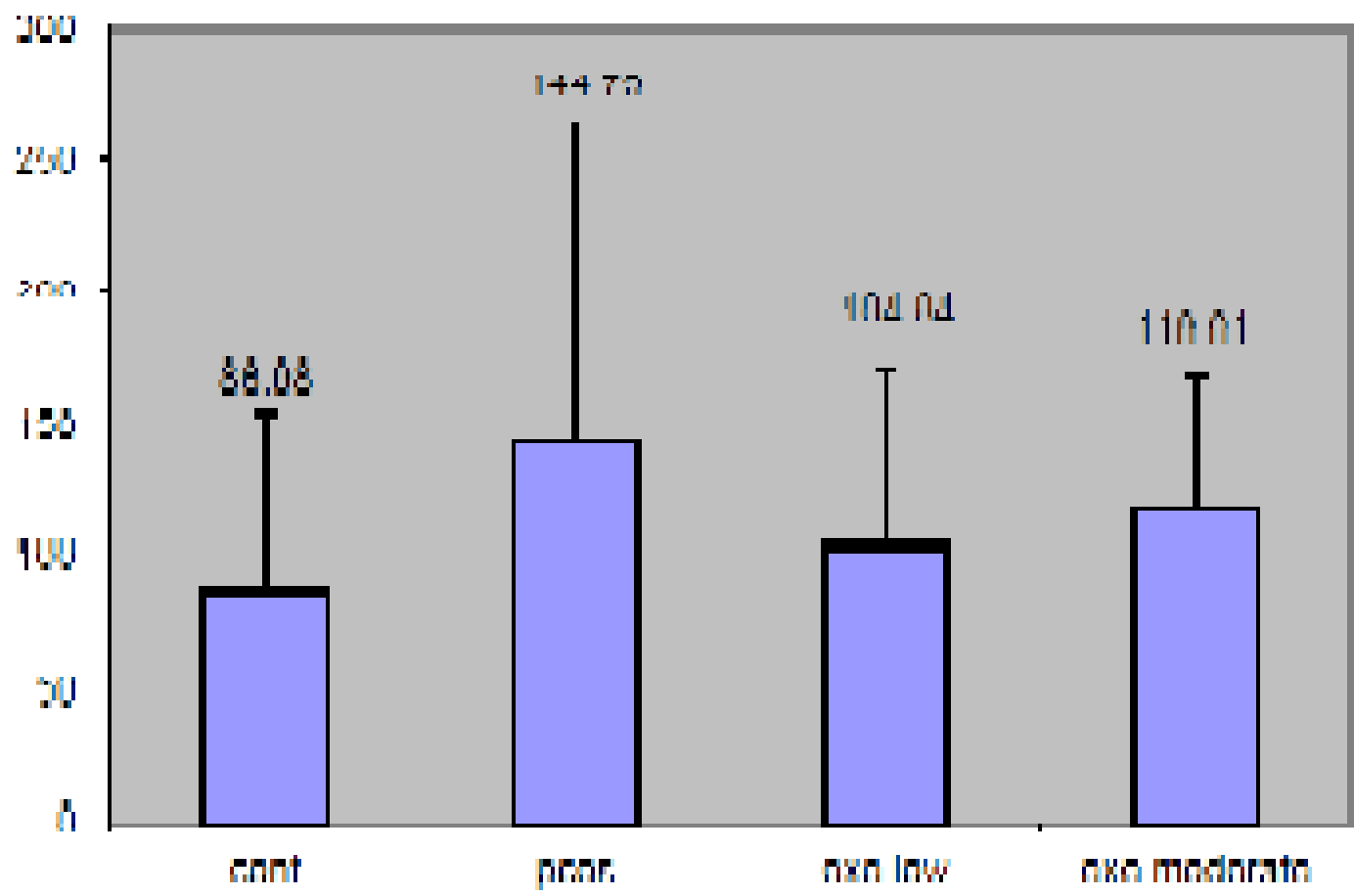
## . Results of free testosterone ➤

The PCO + exe.m group showed a significant rise in free testosterone. No ➤ significant differences were found in the pco + exe.l group and polycystic group comparing the control group. Also pco + exe.l group did not have significant difference compared to polycystic group.

## Mean level of free testosterone



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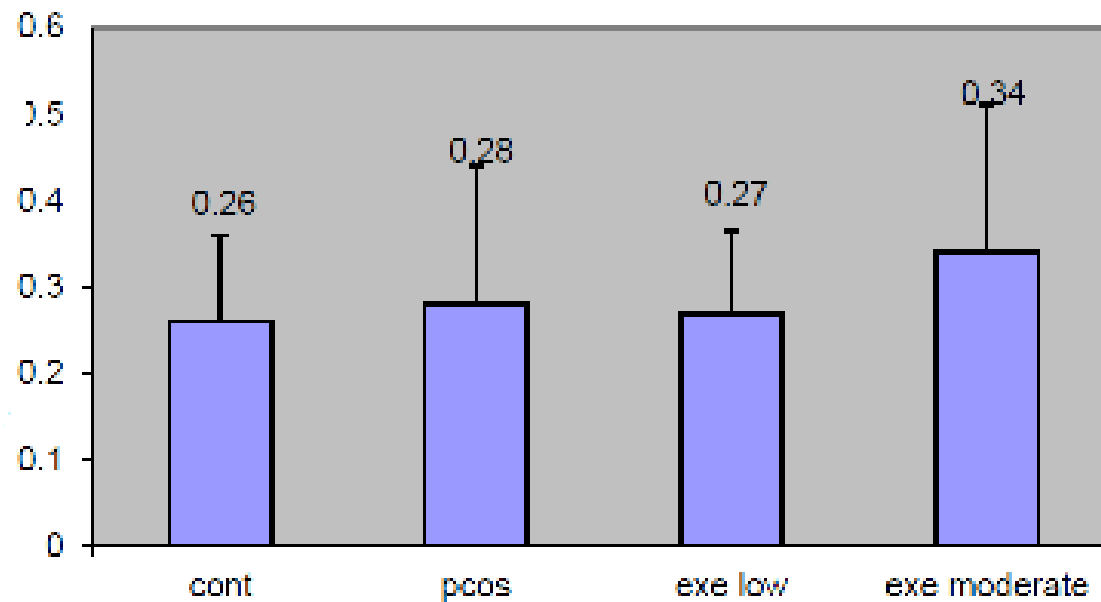


## Result of androstenedione

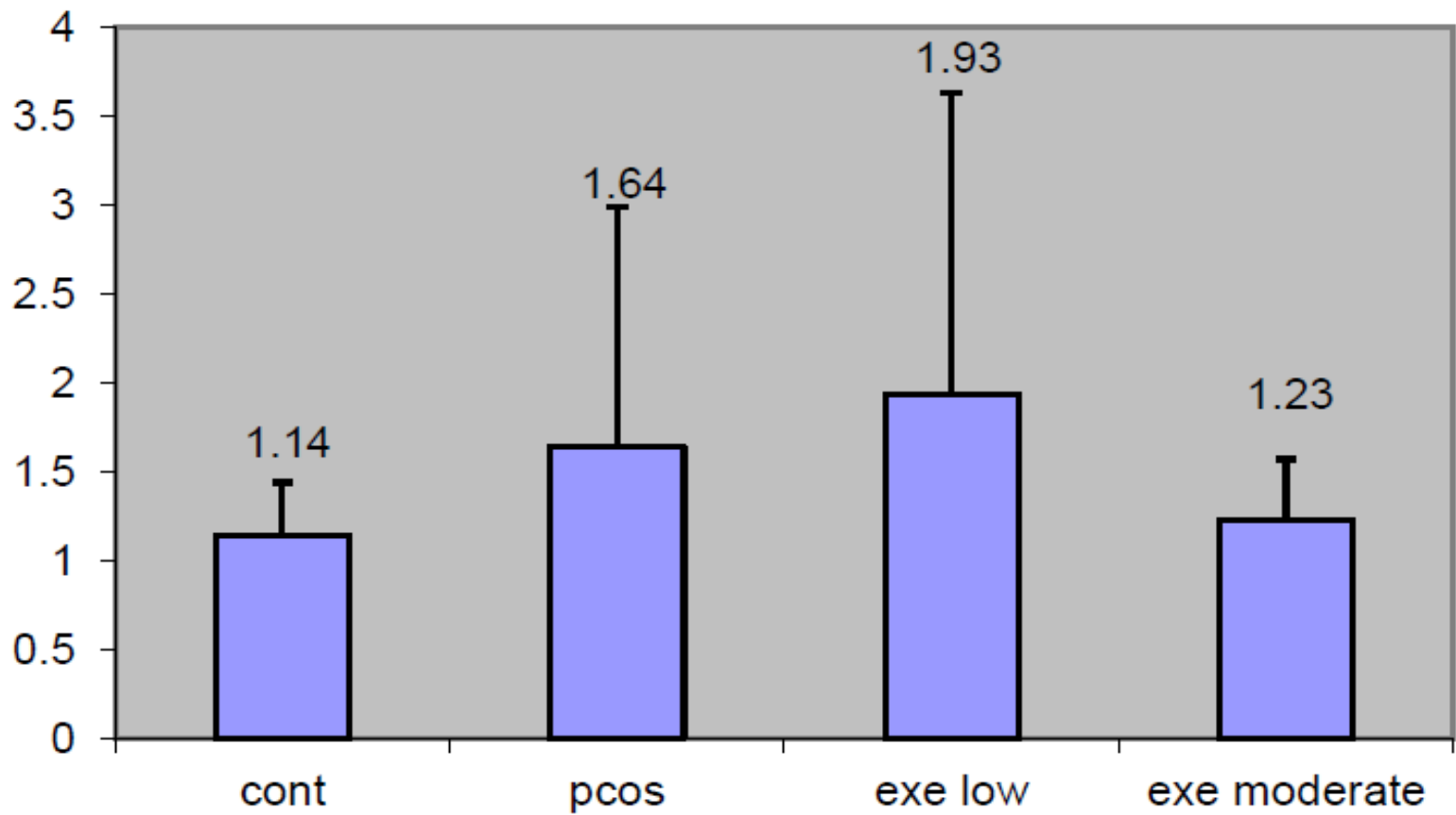
Results showed that, androstenedione hormone changes in experiment group did not have significant difference compared to control group. There was no statistically significant difference between the decrease in androstenedione concentration in PCO + exe.l compared to Sham and there was no statistically significant difference between the increase in androstenedione concentration in pco + exe.m compared to sham and also the difference was not significant in PCO + exe.l group compared to PCO + exe.m.

a

## Mean level of androstenedione

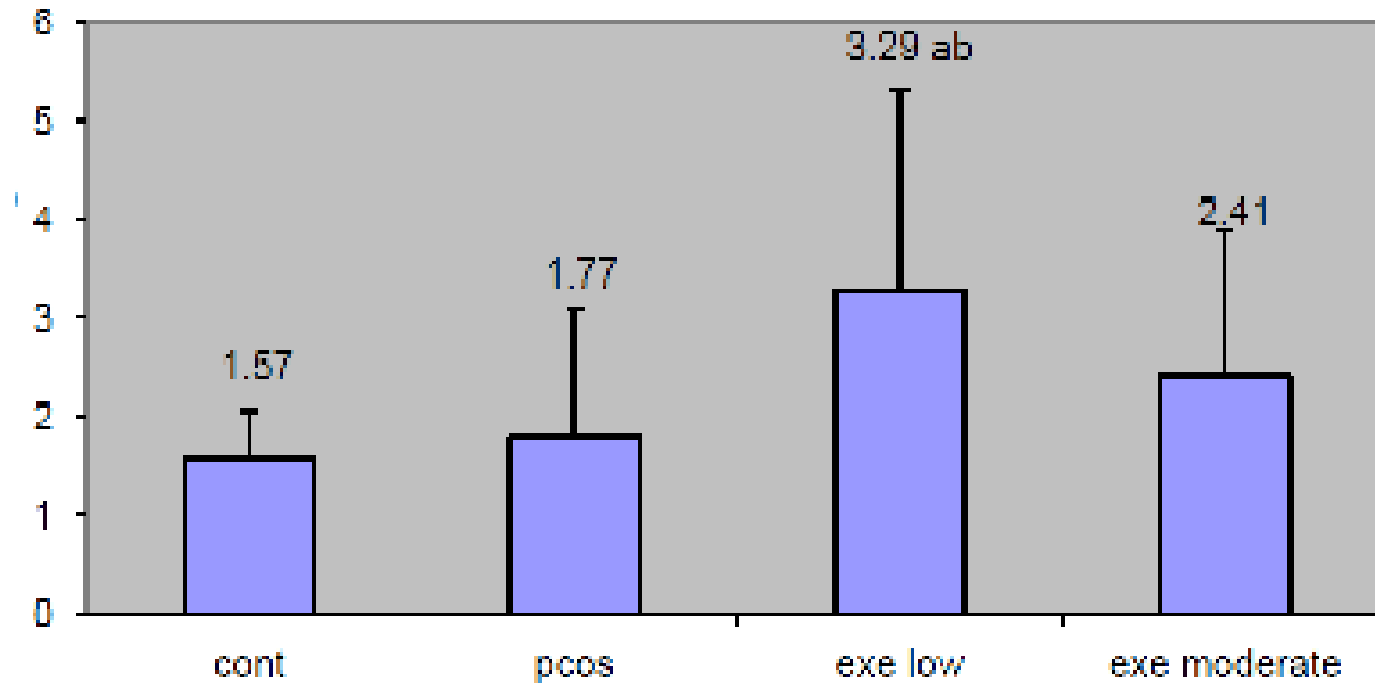


## Mean level of LH





# Mean level of FSH



# Discussion

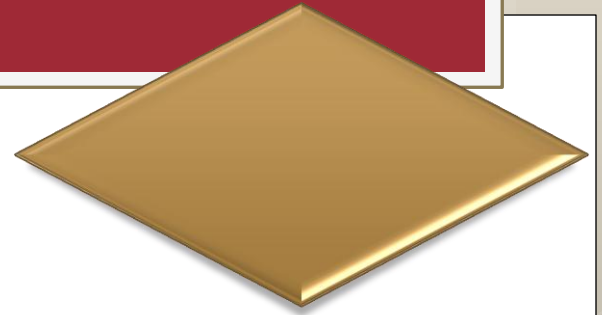
This study demonstrated that low intensity exercise may modify sexual hormones (androstenedione and Free testosterone) in polycystic ovary syndrome after 8 week. Effect of exercise intensity and its duration on menstruation have not been monitored. Another research showed that, significant rise of free testosterone was observed in women exercising with 75% intensity. They indicated that, rise of hormone is because of decrease in clearance of testosterone due to hepatic blood serum flow reduction. Other studies have found that obesity generates an increase of testosterone levels in PCOS patients. But in our study, free testosterone changes in PCO + exe. shows the sufficiency of low exercise intensity.





Here we provided evidence that both low and moderate exercise intensity might enhance polycystic ovary syndrome and decrease its complications due to its effect on weight reduction and sex hormones (androstenedione and Free testosterone). Based on our results, low intensity exercise might be more effective and improve its symptoms





## Acknowledgments

# reference

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