

EFFECT OF MUSCULAR EXERCISE ON C-PEPTIDE AND GLYCOSYLATED HEMOGLOBIN IN OBESE AND NON OBESE MALE ALBINO RATS

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Summary

Prolonged muscular exercise has repeatedly been shown to reduce the plasma insulin level. This effect was ascribed to reduced insulin secretion. Some data indicate that insulin clearance is also changed during exercise.

Insulin secretion and removal have been reported to be altered in such disorders as obesity and diabetes Type II. This raises the question of whether metabolism (secretion and removal) of insulin also changes in these disorders during exercise. Recently, have shown that exercise decreases the plasma insulin level in obese non-diabetics, but has no effect on non-insulin-dependent obese diabetics. Insulin is removed rapidly from the circulation, so that concentration of the hormone in the peripheral plasma is influenced not only by the rate of secretion, but also to a great extent by the rate of removal

The present study was conducted on 30 adult male albino rats of local strain. Rats have been selected for age 8-10 weeks old.

The rats were divided into 2 equal groups:-

Control group:- consist of 15 rats. Weighting 120-150 gm. The rats were fed a standard diet of commercial rats chow and tap water and left to acclimatize to environment for two weeks before inclusion to experiment.

Obese group:- consist of 15 rats. Obesity were induced by high caloric diet by feeding full cream milk for 3 months until their weighting reached about 300-400 gm prior to inclusion in the experiment. Then shifting feeding to normal caloric diet.

The rats in each group were subjected to swimming exercise program, rats were given the chance to stay in water on the 1st day for 10 min/day till reaching 60min/day on the six day to be familiar and adapted with water the exercise protocol continued for 5d/wk for 90 days

The blood samples were taken from all rats at the beginning and at the end of experiments.

The following parameters will be studied in each animal before and after exercise:

- Body weight and body mass index.
- Serum level of C-peptide.
- Serum level of HbA1c.
- Blood glucose level

Results obtained in this study revealed a significant decrease in weight, BMI, C-peptide level, HbA1c level and glucose level after the end of the exercise program in obese and control groups but the level of reduction was more in obese group than control group.