

COMPARISON OF CHANGES IN BLOOD GLUCOSE LEVELS POST-AEROBIC, RESISTANCE AND COMBINED IN MALE WISTAR MICE DIABETES MELLITUS MODEL

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ABSTRACT

Diabetes mellitus is one of the biggest global health problems of the 21st century. Lack of understanding of social and economic impacts is the biggest obstacle to blood glucose control, through a combination of diet, physical activity and formulating a prevention strategy policy that suppresses the increase in type 2 diabetes mellitus. Sports exercise is recognized to play an important role in the prevention and management of type 2 diabetes because it is able to control blood glucose. Objective: Proving aerobic, resistance and combination exercise can lower blood glucose levels in male Wistar rats modeling diabetes mellitus, as well as comparing better combination exercises from aerobic exercise as well as resistance exercises in lowering blood glucose levels. Methods: Type of laboratory experimental study with *Pretest-posttest group design*. Total sample of 33 male Wistar rats divided into three groups, each treatment group consisted of 11 tails. Result: based on *Paired t-test* the result of average delta of blood glucose group (G1) in pre-treatment and post-treatment group was $204,82 \pm 29,842$ mg / dL with p value = 0,000 ($p < \alpha = 0,05$). The mean delta blood glucose level of pre-treatment and post-treatment group (G2) was $243,91 \pm 60,907$ mg / dL with p value = 0,000 ($p < \alpha = 0,05$). The mean delta blood glucose level of pre-treatment and post-treatment group (G3) was $280,36 \pm 29,924$ with p = 0,000 ($p < \alpha = 0,05$). One-Way ANOVA test result was obtained p = 0,013 ($p < \alpha = 0,05$). *Post Hoc Test* Test using LSD G1 with G2 ($p > \alpha$), G1 with G3 ($p < \alpha$) is different at α 5%, G2 with G3 ($p > \alpha$). Conclusion: The three types of aerobic, resistant and combination exercises can lower blood glucose levels. Comparison of the three types of exercise showed better combination exercises than aerobic exercise alone in lowering blood glucose levels.

Key words : blood glucose level, aerobic, resistance, combination, type 2 diabetes melitus