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Effects of chronic moderate intensity exercise on blood glucose, fasting insulin, FFA and insulin resistance in male Wistar rats with diabetes mellitus**Aywar Zamri, Achmad Rudijanto and Putu Moda Arsana**
RSUD Dr. Saiful Anwar, Indonesia**Aim:** The aim is to assess whether chronic moderate intensity exercise had effects on blood glucose, fasting insulin, FFA and insulin resistance in male Diabetes Mellitus (DM) Wistar rats.**Method:** A 10 weeks experimental laboratorial study with Wistar diabetes *Rattus norvegicus* strain rats using pretest-posttest comparison group design. Twenty (20) rats were divided into four groups of rats, five rats per group. The four groups were: Normal rats with sedentary lifestyle, normal rats with exercise, DM rats with sedentary lifestyle and DM rats with exercise. In the exercise groups (normal and DM), rats performed a treadmill for 10 weeks whereas speed and duration were gradually increased every two weeks, starting at 10 m/minute for 10 minutes and increased until 26 m/minute for one hour a week 9 and 10. Blood plasma examination was performed in each group for fasting blood glucose, fasting insulin, FFA and HOMA-IR was calculated at baseline and the end of week 10.**Results:** There were no significant differences between before and after exercise in the group of normal exercise rats and DM exercise rats but there was a tendency of decreasing plasma glucose (pre 143.59; post 121.65, p 0.39), insulin (pre 16.56; post 15.38, p 0.32), FFA (pre 19.93; post 14.05, p 0.36) and HOMA-IR (pre 5.87; posts 4.62, p 0.27) in normal rats before and after exercise. Likewise, there was a downward trend in DM rats exercise blood glucose levels (pre 242.26; Post 222.03, p 0.63), insulin (pre 26.5; post 24.45, p 0.12, HOMA-IR (pre 15.58; post 13.5, p 0.37) and FFA (pre 26.5; post 24.45, p 0.12) before and after exercise.**Conclusion:** There was a decrease in insulin resistance as indicated by a tendency to decrease HOMA-IR, fasting insulin, plasma glucose, plasma FFA. It might require longer than 10 weeks of exercise to see a significant decrease on these parameters.

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