

Abstract

Objective: The main aim of this bachelor thesis was to compare the effects of aerobic and resistance exercise on glycemic control and overall health in individuals with Type 2 Diabetes Mellitus (T2DM) who use oral anti-diabetic medication.

Methods: Due to constraints on participant recruitment, the study was conducted as a case study involving a 12-week resistance exercise program for a 50-year-old female participant. Measurements included changes in glycated hemoglobin (HbA1c), total and LDL cholesterol levels, physical fitness, muscle mass, muscle strength, and psychological health.

Results: The resistance exercise regimen resulted in mixed outcomes. While notable improvements were observed in the participant's physical fitness, muscle mass, muscle strength, and psychological health, there was an unexpected increase in HbA1c levels, indicating a potential worsening of long-term glycemic control. Additionally, there was a reduction in total and LDL cholesterol levels, suggesting a beneficial impact on cardiovascular health.

Conclusion: This case study reveals the complex nature of exercise impacts on individuals with T2DM, highlighting the need for more extensive research with a larger cohort to derive more definitive conclusions about the role of exercise in managing T2DM.

Keywords: Type 2 Diabetes Mellitus, Resistance Exercise, Aerobic Exercise, Glycemic Control, Physical Fitness, Psychological Health.