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Effects of progressive resistance exercise on glycosylated haemoglobin (HBA1C) and lipid profile in type 2 diabetes mellitus (dm) patients

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Objective: The primary objective of the study was to establish the effectiveness of an exercise and dietary intervention program on the changes in baseline HbA1C and Lipid profiles between and among exercise and control groups over time.

Methods: The study was undertaken in Guateng, S.A, in Mamelodi, a suburb in the city of Tshwane. A community hall in the Mamelodi area was used to perform the interventional exercise and educational sessions. The study spanned for duration of 5 months (20 weeks), Study participants comprised of both black male and female participants between the ages 40-65 years with type 2 DM. Subjects had to comply with the Inclusion and Exclusion Criteria.

Results: In comparing the difference in glucose control in both the exercise and control groups over time having adjusted for baseline there was a significant difference in the exercise group over time ($p < 0.04$), however there was no significant difference ($p = 0.72$) in the control group over time. In viewing the Lipid

profiles there has been no significant difference among the exercise group ($p > 0.5$). There also was no significant difference over time between both groups ($p > 0.05$). The above is indicative that exercise did not positively influence their lipid profiles. Conclusion: The primary outcome of the study was to determine whether a supervised exercise and dietary intervention to decrease HbA1c over a 20-week period in type 2 subjects was more effective than a dietary education. However, the HbA1c did improve in the exercise group over time as compared to the control group but had no significant difference among between groups over time. This 20-week intervention program involving the lifestyle change of dietary education and dietary education and exercise intervention resulted in better glycemic control in the exercise group. Significant reductions were achieved in the HbA1c percentages in the exercise group ($p = 0.04$) over time whilst no-significant difference was observed in the control group over time. There has been no significant change in the lipid values over time.

Biography

Yvonne Paul - Bio-sketch is an Associate Professor and Acting Assistant Dean (Teaching and Learning) in Department of Sport, Rehabilitation and Dental Sciences, Faculty of Science at the Tshwane University of Technology in Pretoria, Gauteng, where she has been a faculty member since 1999. She has completed her PhD at the University of Pretoria, which focuses on the discipline of Biokinetics and Sport Science, and her undergraduate was completed at University of Durban Westville in Kwa-Zulu Natal (Currently called University of Kwa-Zulu Natal). Her research interest lays in the area of Diabetes Mellitus and in particular the Efficacy of Exercise as a modality of treatment for Diabetes Mellitus. She works in research areas related to Diabetes Mellitus and uses exercise as the treatment modality as the core treatment. She has published numerous articles in the area pertaining to health and wellness. She is also a registered Biokineticist, a profession that uses exercise as a core modality as a final phase rehabilitation. She is currently one of the Directors on the South African Biokinetics Board for National and International relations, she has served on national and international scientific committees, has chaired national and international conferences. She has been invited to speak as keynote speakers at national and international conferences. She has published many articles in accredited journals and a chapter for a book. She has continuous interests in researching on exercise and the various topics related to Diabetes mellitus. She is currently the Head of Department of Sport, Rehabilitating and Dental Sciences at the Tshwane University of Technology, Gauteng, South Africa and is involved in lecturing pathophysiology and Chronic Diseases for the Biokinetics students.

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