INPLASY PROTOCOL

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Support: **There is no support.**

Review Stage at time of this submission: **The review has not yet started.**

Conflicts of interest:
None declared.

The effect of physical exercise on ECG and quality of life of people living with type 2 diabetes. A systematic review protocol

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Review question / Objective: **To investigate the effect of physical exercise on ECG and the quality of life of people living with type 2 diabetes (Using PICO framework to define the question) Population Adult human participants aged >= 18 years living with diabetes mellitus type 2. Intervention Physical exercises. Outcome Quality of life Electro-cardiograph.**
Condition being studied: **Type 2 Diabetes mellitus. It is a medical condition characterized by hyperglycemia from resistance to Insulin. People in middle age are most likely to get this condition. Symptoms could are peeing alot, being cranky,blurry vision, fatigue and so on. Glycated haemoglobin can be used to confirm the condition.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 03 May 2022 and was last updated on 03 May 2022 (registration number INPLASY202250016).

INTRODUCTION

Review question / Objective: **To investigate the effect of physical exercise on ECG and the quality of life of people living with type 2 diabetes (Using PICO framework to define the question) Population Adult human participants aged >= 18 years living with diabetes mellitus type 2. Intervention Physical exercises. Outcome Quality of life Electro-cardiograph.**

Rationale: **Diabetes is one of the chronic diseases that can affect life expectancy. It causes morbidity and reduces quality of life. Type 2 diabetes has been found to be associated with high prevalence of cardiovascular abnormalities which can show up on electrocardiograph as**

decreased heart rate variability, depressed ST segment, widening of QTc interval among others. Exercise as a key non pharmacological treatment for type 2 diabetes has been reported by previous authors to improve some ECG abnormalities and quality of life by engendering better glycemic control, reducing micro and macro vascular complications. Exercises attenuate inflammation and enhance the regenerative capacity of cutaneous axons, thus slowing or preventing the progression of autonomic neuropathy and in turn its cardiovascular consequences. However the findings of previous authors on the effect of physical exercise on ECG and quality of life are discordant and thus warrant futher studies. Moreover there is paucity of data on exercise effect on ECG and quality of life of type 2 diabetic population in Nigeria. This study intends to fill this gap and synthesis of the evidence will guide practice.

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METHODS

Search strategy: The databases below will be searched with a pre-determined strategy . In cases where the search results are small in number, search terms will be reduced to maximize the search sensitivity.
Search strategy;
Population:
1. Diabetes mellitus type 2
2. Type 2 diabetes
3. Adult-onset diabetes
4. Non-insulin dependent diabetes
5. 1 OR 2 OR 3 OR4
Intervention;
6.Exercise
7.Physical exercise
8.Exercise training
9.Exertion
10.Aerobic exercise
11.Strengthening exercise
12.Physical activity
13.Resistance exercise
14.Isometric exercise
15.Strength training
16. 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14 OR 15
Outcome 1
17. Quality of life
18. health-related quality of life
19. Life quality
20. Qol
21. 17 OR 18 OR 19 OR 20
22. 5 AND 16 AND 20
Outcome 2
23. Electrocardiogram
24. Electrocardiograph
25. Electrocardiographic markers
26. QRS complex
27. QT interval
28. Atrial fibrillation
29. P wave
30. T wave
31. ST-segment
32. R wave
33. QRS wave
34. 23 OR 24 OR 25 OR 26 OR 27 OR 28 OR 29 OR 30 OR 31 OR 32 OR 33
35. 5 AND 16 AND 34.

Participant or population: Adult who have being clinically diagnosed with type 2 diabetes.

Intervention: Physical exercises.

Comparator: Those that will receive usual care.

Study designs to be included: Randomized control trial studies.

Eligibility criteria: 1. This literature review will include studies involving adult human participants aged >= 18 years clinically diagnosed with diabetes mellitus type 2. 2. physical exercise interventions. 3. Studies that have the outcome of interest which are quality of life and electrocardiograph.

Information sources: Data bases searched; AMED; CINAHL; The Cochrane Library; MEDLINE; PsycINFO; PubMed; Embase Emcare.

Main outcome(s): Quality of life and electrocardiograph.

Additional outcome(s): None.

Data management: Search will be exported into refworks to check for duplication of studies. Bibiliographic records will be exported from refworks into Microsoft excel following the duplication to facilitate the management and selection of articles for inclusion.

Quality assessment / Risk of bias analysis: The first screening of the titles and abstracts against the inclusion and exclusion criteria to recognize potentially important articles will be carried out by E.O and N. I(reviewer 1 and 4). First screening results will be independently cross-checked by F.I(reviewer 2), and the first screening will be followed by a screening of the full articles of these papers by reviewer 1, which will again be crosschecked by reviewer 2, with disagreements at this stage being resolved by consensus or by consultation with SCI (reviewer 3) Following the initial selection of literature, the reviewers will use the PEDRO scale for risk of bias assessment, which includes reference to sequence generation, allocation concealment, blinding, incomplete outcome data (dropouts and withdrawals) and selective outcome reporting regarding the process to be followed for summarizing the studies. Data will be extracted from relevant papers using predefined evidence summary templates . Data will be collected regarding the reasons for exclusion, characteristics of included studies, participants, interventions and outcomes. The final decision for inclusion or exclusion will be made by a team consisting of three reviewers. Any potential disagreement will be recorded and resolved by further discussion.

Strategy of data synthesis: The availability of appropriate data and resources to conduct a meta-analysis will be considered, where feasible. The effects of physical exercise on electrocardiograph and quality of life in, type-2 diabetic conditions will be determined by an assessment of all the quantitative study outcomes which have analyzed the effects of these interventions. The results will be presented, analyzed and combined in a table, and validated. Statistical methods will be used to evaluate the different variables.

Subgroup analysis: Sub analysis will be carried out where such distinctions are available.

Sensitivity analysis: Sensitivity analysis will be performed to study the potential influence of significant heterogeneity which could be due to intervention types or comparator on the treatment effect direction. This will be done only when there are more than two studies with homogeneous subsets. This will be performed on primary outcome only.

Language: English.

Country(ies) involved: Nigeria.

Other relevant information: None.

Keywords: Physical exercises, exercise, QOL, electrocardiograph, ST segment, quality of life.

Dissemination plans: It will be published, presented during clinical meetings, seminars and conferences.

Contributions of each author:

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