

INPLASY PROTOCOL

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**Review Stage at time of this
submission:** Preliminary
searches.

Conflicts of interest:
None.

INTRODUCTION

Review question / Objective: What is the effectiveness of physical exercise in the management of oxidative stress, antioxidants level and to the ratio of pro inflammatory to anti inflammatory

The effective of physical exercise on oxidative stress, antioxidant level and to the ratio of pro-inflammatory to anti-inflammatory cytokines in the serum of PLWHA: a systematic review

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Review question / Objective: What is the effectiveness of physical exercise in the management of oxidative stress, antioxidants level and to the ratio of pro inflammatory to anti inflammatory cytokines in the serum of people living with HIV/AIDS, including those that are HAART-experienced and HAART-naïve?

Condition being studied: Human immunodeficiency virus infection and its advanced form, the acquired immune deficiency syndrome (AIDS), remains a global public health challenge as they are major causes of morbidity and mortality worldwide, and is currently regarded as a chronic health challenge.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 11 October 2020 and was last updated on 11 October 2020 (registration number INPLASY2020100038).

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deficiency syndrome (AIDS), remains a global public health challenge as the are major causes of morbidity and mortality worldwide, and is currently regarded as a chronic health challenge.

METHODS

Search strategy: ((HIV OR AIDS OR RNA viruses OR Retroviridae OR lentivirus OR HIV-1 OR HIV-2) AND (Exercise OR physical activity OR aerobic exercise OR physical exercise OR exertion OR physical fitness OR physical exertion OR sports OR resistance training OR endurance training)) AND (oxidative stress OR nitrosative stress OR physiological stress OR reactive oxygen species OR active oxygen OR pro oxidants OR antioxidant* OR free radical scavengers OR protective agents OR anti-inflammatory agents OR anti-inflammatories OR tumor necrosis factor inhibitors OR c-reactive protein OR cytokines OR interleukin* OR tumor necrosis factor OR TNF).

Participant or population: This review includes only RCTs of the effect of physical exercise in PLWHA, who are adults (>18 years) and are either on HAART or HAART-naïve.

Intervention: Physical exercise.

Comparator: None intervention.

Study designs to be included: This is a systematic review of RCTs on the effect of physical exercises on oxidative stress, antioxidant level and the ratios of pro-inflammatory to anti-inflammatory cytokines in the serum of PLWH.

Eligibility criteria: The review will includes only of Randomized controlled trials (RCTs), clinical trials, cross-over trials that investigated theof the effectiveness of physical exercise on oxidative stress, antioxidants level and the ratio of pro inflammatory to anti inflammatory cytokines in the serum of PLWHA.

Information sources: Searches will involve several combination of search term from

medical subject headings (MeSH) and keywords in the title, abstract and text for the population, intervention, control and outcomes first in a pilot search to establish sensitivity of search strategy. Studies will be search in PubMed, MEDLINE, Cochrane Library, Embase, CINAHL, AMED and Hinari.

Main outcome(s): The outcomes of interest in this review includes oxidative stress, antioxidants level and the ratios of pro inflammatory to anti-inflammatory cytokines in the serum.

Additional outcome(s): None.

Data management: Literature search result will be exported into RefWorks to screen for duplication of studies. Bibliographic records will be exported from RefWorks into Microsoft Excel 2007 to enable screening and selection of articles for inclusion into the study based on specific eligibility criteria.

Quality assessment / Risk of bias analysis: The PEDro scale for quality appraisal of clinical trials will be used to appraise the quality and the risk of bias in the included studies. The PEDro scale is based on the Delphi list developed by Verhagen and colleagues at the Department of Epidemiology, University of Maastricht (Verhagen et al, 1998). This scale was developed by the Physiotherapy Evidence Database and consists of a checklist of 10 scored yes or no questions pertaining to the internal validity and statistical information provided in the study. Poor quality= ≤3; fair/moderate quality= 4-5; high quality= 6-10. Poor quality study means that the study has a high risk of bias, while high quality study means the study have a low risk of bias . Two reviewers will judgments regarding the risk of bias independent of each other. Areas of differences will be resolved by discussion and reflection, or in consultation with the third reviewer. Appraisal of the quality of the included studies will be carried out after study selection was completed, and during data extraction and synthesis. The

strength of evidence for this review will further be reported.

Strategy of data synthesis: First, the question of the effectiveness of exercise would be answered, and thus all quantitative study results which examined the effect of this intervention will be presented, compared and pooled in an evidence table. Appropriate statistical techniques will be used for each type of continuous variables (weighted mean differences if outcomes are consistent or standard mean difference if different outcomes are used, with 95% CI) and dichotomous variables (risk ratios, with 95% CI). Characteristics of the retained studies will be sorted by year of publication and presented in a tabular form providing information relating to authors' references, sample size, age, setting, data collection format, outcomes, components of the intervention, component of the control, format and provider of the intervention, intervention and follow-up periods, and results. The Analysis and presentation of results will be made in hierarchical order with the outcomes coming before the additional variables. Studies will be interpreted using narrative synthesis following the recommendation of the Centre for Reviews and Dissemination to explore the relationship and findings between and within the included studies (Akers et al. 2009).

Subgroup analysis: None.

Sensitivity analysis: Test for heterogeneity will be conducted to determine the impact of studies with high risk of bias on the overall estimate of effect of the intervention across the included studies.

Language: English.

Country(ies) involved: Nigeria.

Keywords: PLWHA, oxidative stress, antioxidant levels, pro inflammatory and anti inflammatory cytokines.

Contributions of each author:

Author 1 - Ibeneme Sam.

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Author 3 - Ireh Frank.