

# INPLASY PROTOCOL

To cite: Sam et al. Effect of physical exercise on oxidative stress, antioxidant level and cytokine balance in people living with HIV/AIDS. Inplasy protocol 2020100038. doi: 10.37766/inplasy2020.10.0038

## Effect of physical exercise on oxidative stress, antioxidant level and cytokine balance in people living with HIV/AIDS

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Received: 11 October 2020

Published: 11 October 2020

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**Support:** Self.

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

**Conflicts of interest:**  
None.

**Review question / Objective:** What are the effect of physical exercise on oxidative stress, antioxidant level and cytokines balance in PLWHA?

**Condition being studied:** Human immunodeficiency virus infection and its emanation, the acquired immune 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.

**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 04 November 2020 (registration number INPLASY2020100038).

### INTRODUCTION

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## METHODS

**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:** This review includes only RCTs of the effect of physical exercise. The type of exercise can be a progressive resistance, aerobic or a combination of both, which is performed as home based, hospital-based or community-based exercise, at a moderate intensity and is accommodative to the patients.

**Comparator:** This review includes studies that compared the effect of physical exercise on oxidative stress, antioxidants level and cytokines balance in PLWHA to any other treatment options such as usual prophylactic care (HAART), counseling or no treatment and no physical exercise.

**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:** This review includes only RCTs of the effect of physical exercise. The type of exercise can be a progressive resistance, aerobic or a combination of both, which is performed as home based, hospital-based or community-based exercise, at a moderate intensity and is accommodative to the patients. The participants are adults and all studies will be done in English language.

**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):** Oxidative stress; Antioxidant level; Anti-inflammatory cytokines; Pro-inflammatory cytokines.

**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 (Table 4.1). Two reviewers will judgments regarding the risk of bias independent of each other. Areas of differences were 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 effect of physical exercise will be answered, and thus all quantitative study results which examined the effect of this intervention were presented, compared and pooled in an evidence table. Appropriate statistical techniques were used for each type of continuous (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 were sorted by year of publication and presented in a tabular form providing information relating to authors references, sample size, age, setting, data collection

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format, outcomes, components of the intervention, component of the control, format and provider of the intervention, intervention and follow-up periods, and results.

**Subgroup analysis:** None.

**Sensibility 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:** Hiv/Aids; oxidative stress; antioxidant level; cytokines balance.

**Contributions of each author:**

Author 1 - Ibeneme Sam.

Author 2 - Ezenwanko Elochukwu

Author 3 - Anthony Ifeanyichukwu.