

Human Immunodeficiency Virus (HIV)

<p>SR/MA Citation: Ibeneme SC, Omeje C, Myezwa H, Ezeofor SN, Anieto EM, Irem F, Nnamani AO, Ezenwankwo FE, Ibeneme GC. Effects of physical exercises on inflammatory biomarkers and cardiopulmonary function in patients living with HIV: a systematic review with meta-analysis. BMC Infectious Diseases. 2019 Dec; 19(1):359.</p>	
<p>Purpose: To evaluate the effects of physical exercises on 1) inflammatory biomarkers and 2) cardiopulmonary function (VO₂ Max) in PLWH.</p>	<p>Abstract: Background: Pro-inflammatory cytokines expressed in human immune deficiency virus (HIV) infection, may induce oxidative stress that is likely to compromise the patency of the airways or damage the lung tissues/cardiac function. However, physical (aerobic and/or resistance) exercise-induced release of heat shock protein, immune function alteration or reduced tissue hypoxia, have been highlighted as possible mechanisms by which increasing physical activity may reduce plasma pro-inflammatory cytokines in uninfected individuals and should be appraised in the literature for evidence of similar benefits in people living with HIV (PLWH). Therefore, we evaluated the effects of physical exercises on 1) inflammatory biomarkers and 2) cardiopulmonary function (VO₂ Max) in PLWH. Method: A systematic review was conducted using the Cochrane Collaboration protocol. Searching databases, up to January 2018. Only randomized control trials investigating the effects of either aerobic or resistance or a combination of both exercise types with a control/other intervention(s) for a period of at least 4 weeks among adults living with HIV, were included. Two independent reviewers determined the eligibility of the studies. Data were extracted and risk of bias (ROB) was assessed with the Cochrane Collaboration ROB tool. Meta-analyses were conducted with random effect models using the Review Manager (RevMan) computer software. Result: Twenty-three studies met inclusion criteria (n = 1073 participants at study completion) comprising male and female with age range 18–65 years. Three meta-analyses across three sub-groups comparisons were performed. The result showed no significant change in biomarkers of inflammation (IL-6 and IL-1β) unlike a significant (Z = 3.80, p < 0.0001) improvement in VO₂ Max. Overall, the GRADE evidence for this review was of moderate quality. Conclusion: There was evidence that engaging in either aerobic or resistance exercise, or a combination of both exercises, two to five times per week can lead to a significant improvement in cardiopulmonary function but not biomarkers of inflammation (IL-6 and IL-1β). However, this should not be interpreted as “No evidence of effect” because the individual trial studies did not attain sufficient power to detect treatment effects. The moderate grade evidence for this review suggests that further research may likely have an important impact on our confidence in the estimate of effects and may change the estimate.</p>
<p>Timeframe: Variable start dates to January 2018</p>	
<p>Total # studies included: 23</p>	
<p>Other details (e.g. definitions used, exclusions etc) Only randomized control trials investigating the effects of either aerobic or resistance or a combination of both exercise types with a control/other intervention(s) for a period of at least 4 weeks among adults living with HIV, were included.</p>	
<p>Outcomes addressed: Cardio risk metabolic markers</p>	

SR/MA	
Citation: Ibeneme SC, Irem FO, Iloanusi NI, Ezuma AD, Ezenwankwo FE, Okere PC, Nnamani AO, Ezeofor SN, Dim NR, Fortwengel G. Impact of physical exercises on immune function, bone mineral density, and quality of life in people living with HIV/AIDS: a systematic review with meta-analysis. BMC Infectious Diseases. 2019 Dec;19(1):340.	
Purpose: The main study objective was to evaluate the impact of physical (aerobic and resistance) exercises on CD4+ count, BMD and QoL in PLWHA.	Abstract:
Timeframe: Variable start dates to June 2017	Background: Compromised immune function, associated with human immune deficiency virus (HIV) infection, is improved by antiretroviral therapy (ART) which also decreases bone mineral density (BMD), and possibly the quality of life (QoL). However, physical (aerobic/resistance) exercises, were reported to induce reverse effects in uninfected individuals and were appraised in the literature for evidence of similar benefits in people living with HIV/AIDS (PLWHA). The main study objective was to evaluate the impact of physical (aerobic and resistance) exercises on CD4+ count, BMD and QoL in PLWHA.
Total # studies included: 19	Methods: A systematic review was conducted using the Cochrane Collaboration protocol. Searching databases, up to June 2017, only randomized control trials investigating the effects of either aerobic, resistance or a combination of both exercise types with a control/other intervention(s) for a period of at least 4 weeks among adults living with HIV, were included. Two independent reviewers determined the eligibility of the studies. Data were extracted and risk of bias (ROB) was assessed with the Cochrane Collaboration ROB tool. Meta-analyses were conducted using random effect models using the Review Manager (RevMan) computer software.
Other details (e.g. definitions used, exclusions etc)	Results: Nineteen studies met inclusion criteria (n = 491 participants at study completion) comprising male and female with age range 22–66 years. Two meta-analyses across 13 sub-group comparisons were performed. However, there were no RCTs on the impact of physical exercises on BMD in PLWHA. The result showed no significant change in CD4+ count unlike a significant effect of 5.04 point (95%CI:-8.49,-3.74, p = 0.00001) for role activity limitation due to physical health (QoL sub-domain). Overall, the GRADE evidence for this review was of moderate quality.
Outcomes addressed: HRQOL, Viral load/CD4+ count	Conclusion: There was evidence that engaging in moderate intensity aerobic exercises (55–85% Maximum heart rate-MHR), for 30–60 min, two to five times/week for 6–24 weeks significantly improves role activity limitation due to physical health problems, otherwise physical(aerobic or/and resistance) exercises have no significant effects on CD4+ count and other domains of QoL. Also, there is lack of evidence on the impact of exercises on BMD in PLWHA due to the paucity of RCTs. The moderate grade evidence for this review suggests that further research may likely have an important impact on our confidence in the estimate of effects and may change the estimate.

SR/MA	
Citation: O'Brien KK, Tynan AM, Nixon SA, Glazier RH. Effectiveness of Progressive Resistive Exercise (PRE) in the context of HIV: systematic review and meta-analysis using the Cochrane Collaboration protocol. BMC Infectious Diseases. 2017 Dec;17(1):268.	
Purpose: The study examined the safety and effectiveness of progressive resistive exercise (PRE) interventions on immunological, virological, cardiorespiratory, strength, weight, body composition, and psychological outcomes in adults living with HIV.	Abstract: Background: HIV is increasingly considered a chronic illness. More individuals are living longer and aging with the health-related consequences associated with HIV and multi-morbidity. Exercise is a self-management approach that can promote health for people aging with HIV. We examined the safety and effectiveness of progressive resistive exercise (PRE) interventions on immunological, virological, cardiorespiratory, strength, weight, body composition, and psychological outcomes in adults living with HIV. Methods: We conducted a systematic review using the Cochrane Collaboration protocol. Searching databases up to April 2013, we included randomized controlled trials that compared PRE with no exercise or another intervention performed at least three times per week for at least four weeks with adults living with HIV. Two reviewers independently determined study eligibility. We extracted data from included studies and assessed risk of bias using the Cochrane Collaboration risk of bias tool. Meta-analyses were conducted using random effects models with Review Manager (RevMan) computer software.
Timeframe: Variable start dates to April 2013.	Results: Twenty studies met inclusion criteria (n = 764 participants at study completion); the majority of participants were men (77%) taking antiretroviral therapy (14/20 included studies). Exercise interventions included PRE alone (8 studies) or a combination of resistive and aerobic exercise (12 studies) ranging from 6 to 52 weeks in duration. Thirty-four meta-analyses were performed. Results demonstrated statistically significant improvements in cardiorespiratory status (maximum oxygen consumption, exercise time), strength (chest press, knee flexion), weight, and body composition (arm and thigh girth, leg muscle area) among exercisers versus non-exercisers. We found no significant differences in change in CD4 count and viral load. We were unable to perform meta-analyses for psychological outcomes however results from individual studies demonstrated improvements in health-related quality of life with exercisers compared with non-exercisers.
Total # studies included: 20	Conclusion: Performing progressive resistive exercise (PRE) or a combination of resistive and aerobic exercise at least three times per week for at least six weeks is safe and can lead to improvements in cardiorespiratory fitness, strength, weight, and body composition for adults with HIV. Exercise may be considered a safe and beneficial for enhancing the health of medically stable adults aging with HIV.
Other details (e.g. definitions used, exclusions etc)	
Outcomes addressed: HRQOL, Body composition, Fitness and functional capacity, Cardio metabolic markers, Viral load/CD4 ⁺ count.	

SR/MA	
Citation: O'Brien KK, Tynan AM, Nixon SA, Glazier RH. Effectiveness of aerobic exercise for adults living with HIV: systematic review and meta-analysis using the Cochrane Collaboration protocol. BMC Infectious Diseases. 2016 Dec;16(1):182.	
Purpose: Our aim was to examine the safety and effectiveness of aerobic exercise interventions on immunological, virological, cardiorespiratory, strength, weight, body composition, and psychological outcomes in adults living with HIV.	Abstract: Background: People with HIV are living longer with the health-related consequences of HIV, multi-morbidity, and aging. Exercise is a key strategy that may improve or sustain health for people living with HIV. Our aim was to examine the safety and effectiveness of aerobic exercise interventions on immunological, virological, cardiorespiratory, strength, weight, body composition, and psychological outcomes in adults living with HIV. Methods: We conducted a systematic review using the Cochrane Collaboration protocol. We searched databases up to April 2013. We included randomized controlled trials comparing aerobic exercise with no exercise or another intervention performed at least three times per week for at least four weeks among adults living with HIV. Two reviewers independently determined study eligibility. Data were extracted from studies that met inclusion criteria using standardized forms. We assessed risk of bias using the Cochrane Collaboration's tool for assessing risk of bias. Outcomes were analyzed as continuous and meta-analyses conducted using random effects models with Review Manager (RevMan) computer software.
Timeframe: Variable start dates to April 2013.	Results: Twenty-four studies met inclusion criteria (n = 936 participants at study completion); the majority of participants were men (73 %) and the majority were taking antiretroviral therapy (19/24 included studies). The exercise intervention included aerobic exercise alone (11 studies) or a combination of aerobic and resistive exercise (13 studies) ranging from 5 to 52 weeks. Fifty-eight meta-analyses were performed. Main results indicated statistically significant improvements in selected outcomes of cardiorespiratory status (maximum oxygen consumption, exercise time), strength (chest press, knee flexion), body composition (lean body mass, percent body fat, leg muscle area), depression symptoms, and quality of life (SF-36 questionnaire) among exercisers compared with non-exercisers. No significant differences in change in CD4 count and viral load were found.
Total # studies included: 24	Conclusions: Performing aerobic exercise or a combination of aerobic and resistive exercise at least three times per week for at least five weeks is safe and can lead to improvements in cardiorespiratory fitness, strength, body composition and quality of life for adults with HIV. Aerobic exercise is safe and beneficial for adults living with HIV who are medically stable.
Other details (e.g. definitions used, exclusions etc)	
Outcomes addressed: HRQOL, body composition, anxiety/depression, fitness and functional capacity, viral load/CD4+ count	

SR/MA

Citation: Gomes-Neto MG, Conceição CS, Carvalho VO, Brites C. Effects of combined aerobic and resistance exercise on exercise capacity, muscle strength and quality of life in HIV-infected patients: a systematic review and meta-analysis. PloS One. 2015 Sep 17;10(9):e0138066.

Purpose: The aim of this systematic review with meta-analysis was to analyse the published RCTs that investigated the effects of combined aerobic and resistance exercise (CARE) on peak oxygen consumption, muscle performance, and quality of life in HIV infected patients.

Timeframe: Up to august 2014

Total # studies included: 7

Other details (e.g. definitions used, exclusions etc)

Outcomes addressed: Peak oxygen consumption (peak VO₂, mL/Kg/min), Muscle performance, and quality of life.

Abstract:

Background: Many HIV-infected patients demonstrate disability and lower aerobic capacity. The inclusion of resistance training combined with aerobic exercise in a single program is known as combined aerobic and resistance exercise (CARE) and seems to be an effective strategy to

improve muscle weakness, as well as aerobic capacity in HIV-infected patients. We performed a meta-analysis to investigate the effects of CARE in HIV-infected patients.

Method: We searched MEDLINE, Cochrane Controlled Trials Register, EMBASE, CINAHL (from the earliest date available to august 2014) for controlled trials that evaluated the effects of CARE in HIV-infected patients. Weighted mean differences (WMD) and 95% confidence intervals (CIs) were calculated, and heterogeneity was assessed using the I² test.

Result: Seven studies met the study criteria. CARE resulted in improvement in Peak VO₂ WMD (4.48 mL kg⁻¹ min⁻¹ 95% CI: 2.95 to 6.0), muscle strength of the knee extensors WMD (25.06 Kg 95% CI: 10.46 to 39.66) and elbow flexors WMD (4.44 Kg 95% CI: 1.22 to 7.67) compared with no exercise group. The meta-analyses also showed significant improvement in Health status, Energy/Vitality and physical function domains of quality of life for participants in the CARE group compared with no exercise group. A non-significant improvement in social function domain of quality of life was found for participants in the CARE group compared with no exercise group.

Conclusion: Combined aerobic and resistance exercise may improve peak VO₂, muscle strength and health status, energy and physical function domains of quality of life and should be considered as a component of care of HIV-infected individuals.

SR/MA	
Citation: O'Brien K, Nixon S, Tynan AM, Glazier R. Aerobic exercise interventions for adults living with HIV/AIDS. Cochrane Database of Systematic Reviews. 2010(8).	
Purpose: To examine the safety and effectiveness of aerobic exercise interventions on immunologic and virologic, cardiopulmonary, psychologic outcomes and strength, weight, and body composition in adults living with HIV.	Abstract: Background: Access to combination antiretroviral therapy has turned HIV into a chronic and manageable disease for many. This increased chronicity has been mirrored by increased prevalence of health-related challenges experienced by people living with HIV (Rusch 2004). Exercise is a key strategy for people living with HIV and by rehabilitation professionals to address these disablements; however, knowledge about the effects of exercise among adults living with HIV still is emerging. Objectives: To examine the safety and effectiveness of aerobic exercise interventions on immunologic and virologic, cardiopulmonary, psychologic outcomes and strength, weight, and body composition in adults living with HIV.
Timeframe: Searches of papers from 1980 to June 2009.	Search methods: Searches of MEDLINE, EMBASE, SCIENCE CITATION INDEX, CINAHL, HEALTHSTAR, PsycINFO, SPORTDISCUS and Cochrane Review Group Databases were conducted between 1980 and June 2009. Searches of published and unpublished abstracts and proceedings from major international and national HIV/AIDS conferences were conducted, as well as a hand search of reference lists and tables of contents of relevant journals and books.
Total # studies included: 14	Selection criteria: We included studies of randomised controlled trials (RCTs) comparing aerobic exercise interventions with no aerobic exercise interventions or another exercise or treatment modality, performed at least three times per week for at least four weeks among adults (18 years of age or older) living with HIV.
Other details (e.g. definitions used, exclusions etc)	Data collection and analysis: Data on study design, participants, interventions, outcomes, and methodological quality were abstracted from included studies by two reviewers. Meta-analyses, using RevMan 5 computer software, were performed on outcomes when possible.
Outcomes addressed: Viral load, Body composition, HRQOL, Fitness and functional capacity, Cardio metabolic markers, Anxiety/Depression	Results: A total of 14 studies met inclusion criteria for this review and 30 meta-analyses over several updates were performed. Main results indicated that performing constant or interval aerobic exercise, or a combination of constant aerobic exercise and progressive resistive exercise for at least 20 minutes at least three times per week for at least five weeks appears to be safe and may lead to significant improvements in selected outcomes of cardiopulmonary fitness (maximum oxygen consumption), body composition (leg muscle area, percent body fat), and psychological status (depression-dejection symptoms). These findings are limited to participants who continued to exercise and for whom there were adequate follow-up data.
	Conclusion: Aerobic exercise appears to be safe and may be beneficial for adults living with HIV. These findings are limited by the small sample sizes and large withdrawal rates described in the studies. Future research would benefit from participant follow-up and intention-to-treat analysis. Further research is required to determine the optimal parameters in which aerobic exercise may be most beneficial for adults living with HIV.

SR/MA	
Citation: Nixon S, O'Brien K, Glazier R, Tynan AM. Aerobic exercise interventions for adults living with HIV/AIDS. Cochrane Database of Systematic Reviews. 2005(2).	
Purpose: To examine the safety and electiveness of aerobic exercise interventions on immunological/virological, cardiopulmonary and psychological parameters in adults living with HIV/AIDS.	Abstract:
Timeframe: From February 2001 to August 2003	Background: The profile of HIV infection is constantly changing. Although once viewed as an illness progressing to death, among those with access to antiretroviral therapy, HIV can now present as a disease with an uncertain natural history, perhaps a chronic manageable disease for some. This increased chronicity of HIV infection has been mirrored by increased prevalence of disablement in the HIV-infected population (Rusch 2004). Thus, the needs of these individuals have increasingly included the management of impairments (problems with body function or structure as a significant deviation or loss, such as pain or weakness), activity limitations (dificulties an individual may have in executing activities, such as inability to walk) and participation restrictions (problems an individual may experiences in involvement in life situations, such as inability to work) (WHO2001). Exercise is a key strategy employed by people living with HIV/AIDS and by rehabilitation professionals to address these issues. Exercise has been shown to improve strength, cardiovascular function and psychological status in seronegative populations (Bouchard 1993), but what are the elects of exercise for adults living with HIV? If the risks and benefits of exercise for people living with HIV are better understood, appropriate exercise may be undertaken by those living with HIV/AIDS and appropriate exercise prescription may be practiced by healthcare providers. If effective and safe, exercise may enhance the effectiveness of HIV management, thus improving the overall outcome for adults living with HIV.
Total # studies included: 10	
Other details (e.g. definitions used, exclusions etc)	
Outcomes addressed: HRQOL, Anxiety/Depression, Fitness and Functional capacity, Viral load/CD4+ count	Objectives: To examine the safety and effectiveness of aerobic exercise interventions on immunological/virological, cardiopulmonary and psychological parameters in adults living with HIV/AIDS. Search methods: To identify the appropriate studies, we conducted a search using MEDLINE, EMBASE, SCIENCE CITATION INDEX, AIDSLINE, CINAHL, HEALTHSTAR, PSYCHLIT, SOCIOFILE, SCI, SSCI, ERIC and DAI. We also reviewed both published and unpublished abstracts and proceedings from major international and national HIV/AIDS conferences such as the Intersciences Conference on Antimicrobial Agents and Chemotherapy (ICAAC), the Conference on Retroviruses and Opportunistic Infections (CROI), the Infectious Diseases Society of America Conference (IDSA) and the International AIDS Conference (IAC). Reference lists from pertinent articles and books were reviewed and personal contacts with authors were used, as well as Collaborative Review Group databases. Targeted journals were hand searched for relevant articles. There were no language restrictions. Searches for the original review covered the period from 1980 to July 1999. The first update of this review included an additional search of the literature, followed by identification of included studies that met the inclusion criteria from August 1999 to January 2001. For the second update, we conducted a search to identify additional studies published from February 2001 to August 2003. Selection criteria: Studies were included if they were randomized controlled trials (RCTs) comparing aerobic exercise interventions with no aerobic exercise interventions or another exercise or treatment modality, performed at least three times per week for at least four weeks among adults (18 years of age or older) living with HIV/AIDS.

	<p>Data collection and analysis: Data on study design, participants, interventions, outcomes and methodological quality were abstracted from studies that met the inclusion criteria onto specifically designed data collection forms by at least two reviewers. Meta-analysis was conducted using RevMan 4.2 computer software on outcomes whenever possible.</p> <p>Main results: A total of 10 studies (six from the original search, two from the first updated search and two from this second updated search) met the inclusion criteria for this review. Main results indicated that performing constant or interval aerobic exercise, or a combination of constant aerobic exercise and progressive resistive exercise for at least 20 minutes, at least three times per week for four weeks appears to be safe and may lead to significant reductions in depressive symptoms and potentially clinically important improvements in cardiopulmonary fitness. These findings are limited to those participants who continued to exercise and for whom there was adequate follow-up data.</p> <p>Authors' conclusions: Aerobic exercise appears to be safe and may be beneficial for adults living with HIV/AIDS. These findings are limited by the small sample sizes and large withdrawal rates of the included studies. Future research would benefit from an increased attention to participant follow-up and intention-to-treat analysis. Further research is required to determine the optimal parameters of aerobic exercise and stage of disease in which aerobic exercise may be most beneficial for adults living with HIV.</p>
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SR/MA	
Citation: Bhatta DN, Liabsuetrakul T, McNeil EB. Social and behavioral interventions for improving quality of life of HIV infected people receiving antiretroviral therapy: a systematic review and meta-analysis. Health and Quality of Life Outcomes. 2017 Jan;15(1):80.	
Purpose: This review appraises the evidence for available interventions that focused on quality of life of HIV infected people receiving antiretroviral therapy (ART).	Abstract: Background: Improvement in quality of life is crucial for HIV infected people. Social and behavioural interventions have been implemented in different contexts to improve the quality of life among HIV infected people. This review appraises the evidence for available interventions that focused on quality of life of HIV infected people receiving antiretroviral therapy (ART). Methods: We searched electronic databases for randomized controlled trials of interventions to improve the quality of life of HIV infected people receiving ART. We searched PUBMED and the Cochrane Centre Register of Controlled Trials (CENTRAL) with the terms “social”, “behavioural”, “educational”, “quality of life”, “HIV”, and “RCT”. Searches were conducted for articles published from 1980 to December 16, 2015. Standardized data abstraction methods and searching steps were applied. Results: Twenty-eight studies reported the impact of social or behavioural interventions in quality of life among HIV infected people, of which 15 were conducted in United States of America. A total of 4136 participants were enrolled. Of the 28 studies, four studies included females, two studies included males and remaining studies excluded both males and females. The overall reported methodological quality of the studies was subject to a high risk of bias and the study criteria were unclear in most studies. Twenty-one studies reported a significant intervention effect on at least one quality of life domain. Meta-analyses showed significant improvement in general health, mental health, physical function and environment domains of quality of life among intervention groups. However, the expected impact of the intervention was low to moderate because the rigorousness of the studies was low, information was limited, the sample sizes were small and other the quality of the study designs were poor. Conclusions: Although the available evidence suggests that existing social and behavioural interventions can improve some quality of life domains, the quality of evidence was insufficient to support the notion that these interventions can improve the overall quality of life of HIV infected people receiving ART. Well-designed and rigorous randomized controlled trials with high methodological quality are required.
Timeframe: From 1980 to December 16, 2015.	
Total # studies included: 28	
Other details (e.g. definitions used, exclusions etc)	
Outcomes addressed: HRQOL	

SR	
Citation: Pedro RE, Guariglia DA, Peres SB, Moraes SM. Effects of physical training for people with HIV-associated lipodystrophy syndrome: a systematic review. The Journal of Sports Medicine and Physical Fitness. 2017 May;57(5):685-94.	
Purpose: The aim was systematically review the literature for physiological, metabolic, immunologic, and morphologic adaptations to aerobic, resistance, and concurrent training in people living with HALS.	Abstract: INTRODUCTION: Human immunodeficiency virus-associated lipodystrophy syndrome (HALS) is a major problem among people living with HIV/aids. The exercise training has been used for its treatment; however, the knowledge about benefits and safety still is emerging. The aim was systematically review the literature for physiological, metabolic, immunologic, and morphologic adaptations to aerobic, resistance, and concurrent training in people living with HALS. EVIDENCE ACQUISITION: A search of the Medline, Embase, Cinahl, Lilacs, Scielo, Web of Science, the Cochrane Controlled Trials Register Library and PEDro was performed. The study selection was performed by two blinded researchers follow screening of titles, abstracts, and full-text articles. Therefore, only randomised clinical trials, which investigated the effects of physical training in people with HALS, were included in the present review. The risk of bias was assessed using a Jadad's scale.
Timeframe: July 2013 and updated in July 2016	EVIDENCE SYNTHESIS: From the electronic and manual searches, 332 studies were selected by title, 139 abstracts were read and 95 were excluded, leaving 44 studies, which were read in full. After full text examination only five studies were included in the qualitative analyses. The limitations were: heterogeneity in training prescription, nutritional recommendations, and diagnosis of lipodystrophy, small sample size, utilization of methods with questionable validity for assessments.
Total # studies included: 5	CONCLUSIONS: There is no effect of physical training on CD4 cell count. In addition, aerobic and concurrent training improve VO2max, likewise resistance and concurrent training improve muscular strength.
Other details (e.g. definitions used, exclusions etc)	
Outcomes addressed: HRQOL, Body composition, Fitness and Functional capacity, Cardiometabolic markers, Viral load/CD4+ count	

SR/MA	
Citation: O'Brien KE, Nixon S, Tynan AM, Glazier RH. Effectiveness of aerobic exercise in adults living with HIV/AIDS: systematic review. <i>Medicine and science in sports and exercise</i> . 2004 Oct 1;36:1659-66.	
Purpose: The objective of this systematic review was to examine the effectiveness and safety of aerobic exercise interventions on immunological/virological, cardiopulmonary and psychological outcomes in adults living with HIV/AIDS.	Abstract: Purpose: The objective of this systematic review was to examine the effectiveness and safety of aerobic exercise interventions on immunological/virological, cardiopulmonary and psychological outcomes in adults living with HIV/AIDS. Methods: Ten randomized trials of HIV-positive adults performing aerobic exercise three times per week for at least 4 wk were identified by searching 13 electronic databases, abstracts from conferences, reference lists, and personal contact with authors from 1980 to November 2002. At least two independent reviewers assessed articles for inclusion, extracted data, and assessed methodological quality. Random effects models were used for meta-analysis.
Timeframe: From 1980 to November 2002.	Results: Main results indicated that aerobic exercise was associated with small non-significant changes in CD4 count (weighted mean difference: 14 cells-mm ⁻³ , 95% CI: -26, 54), viral load (weighted mean difference: 0.40 log IO copies, 95% CI: -0.28, 1.07), and VO ₂ . (weighted mean difference: 1.84 mL·kg ⁻¹ ·min ⁻¹ , 95% CI: -0.53, 4.20). Individual studies suggested that aerobic exercise may improve psychological well-being for adults living with HIV/AIDS. These findings are limited to those participants who continued to exercise and for whom there was adequate follow-up.
Total # studies included: 10	Conclusion: In conclusion, performing constant or interval aerobic exercise, or a combination of constant aerobic exercise and progressive resistive exercise for at least 20 min, at least three times per week for 4 wk may be beneficial and appears to be safe for adults living with HIV/AIDS. However, these findings should be interpreted cautiously due to small sample sizes and large dropout rates within the included studies. Future research would benefit from increased attention to participant follow-up and intention-to-treat analysis.
Other details (e.g. definitions used, exclusions etc)	
Outcomes addressed: HRQOL, Anxiety/Depression, Fitness and functional capacity, Viral load/CD4+ count	

SR/MA	
Citation: O'Brien K, Tynan AM, Nixon S, Glazier RH. Effects of progressive resistive exercise in adults living with HIV/AIDS: systematic review and meta-analysis of randomized trials. <i>AIDS Care</i> . 2008 Jul 1; 20(6):631-53.	
Purpose: This systematic review examined the effectiveness and safety of progressive resistive exercise (PRE) interventions on immunological/virological, cardiopulmonary, weight, and body composition, strength and psychological outcomes in adults living with HIV.	Abstract: Aim: This systematic review examined the effectiveness and safety of progressive resistive exercise (PRE) interventions on immunological/virological, cardiopulmonary, weight, and body composition, strength and psychological outcomes in adults living with HIV. Methods: Using Cochrane Collaboration protocol, we included randomized controlled trials from 1980 to 2006 comparing PRE interventions with no PRE or another intervention. Ten studies met inclusion criteria. Seventeen meta-analyses were performed. Results: Results indicated that PRE or a combination of PRE and aerobic exercise may lead to statistically significant increases in weight (WMD: 2.68 kg; 95%CI: 0.40, 4.97) and arm and thigh girth (WMD: 7.91 cm; 95%CI: 2.18, 13.65) among exercisers versus non-exercisers. Trends toward improvement in submaximal heart rate and exercise time also were found. Conclusions: Individual studies suggested that PRE contributed to improved strength and psychological status. Findings are limited to participants who continued to exercise. Progressive resistive exercise appears to be safe and may be beneficial for medically stable adults living with HIV.
Timeframe: From 1980 to 2006	
Total # studies included: 9	
Other details (e.g. definitions used, exclusions etc)	
Outcomes addressed: HRQOL, Body composition, Fitness and functional capacity, Viral load/CD4+ count	

SR/MA	
Citation: Zech P, Pérez-Chaparro C, Schuch F, Wolfarth B, Rapp M, Heissel A. Effects of Aerobic and Resistance Exercise on Cardiovascular Parameters for People Living With HIV: A Meta-analysis. <i>Journal of the Association of Nurses in AIDS Care</i> . 2019 Mar 1; 30(2):186-205.	
Purpose: The aim was to examine the effect of aerobic and resistance exercise alone and in combination on cardiovascular parameters.	Abstract: Background: People living with HIV (PLWH) have limited exercise capacity because of anaemia, neuromuscular disorders, and pulmonary limitations. Methods: We used a meta-analysis to examine the effect of aerobic and resistance exercise alone and in combination on cardiovascular parameters. Subgroup meta-analyses were conducted and long-term effects of exercise were investigated. A systematic literature search was conducted up to July/August 2017. The Physiotherapy Evidence Database-scale was used to rate quality and assess the risk of bias on the papers. Standardized mean differences (SMDs) were calculated to assess the effect of exercise. Results: Post treatment comparison between the exercise and control groups revealed moderate and large effect sizes in favour of the intervention group for VO2max (SMD50.66, p,.0001) and the 6-minute walk test (SMD51.11, p5.0001). Exercise had a positive effect on cardiovascular parameters in PLWH. Conclusion: Exercise can be a prevention factor for PLWH dealing with multiple comorbidities.
Timeframe: Up to August 2017	
Total # studies included: 27	
Other details (e.g. definitions used, exclusions etc)	
Outcomes addressed: Fitness and functional capacity	

SR

Citation: Voigt N, Cho H, Schnall R. Supervised physical activity and improved functional capacity among adults living with HIV: A systematic review. Journal of the Association of Nurses in AIDS Care. 2018 Sep 1;29(5):667-80.

Purpose: The purpose of this review was to investigate whether supervised PA interventions improved functional capacity among adults living with HIV.

Timeframe: Not available

Total # studies included: 15

Other details (e.g. definitions used, exclusions etc)

Outcomes addressed: Fitness and Functional capacity

Abstract:

Background: Physical activity (PA) is an important strategy for healthy aging. Regular PA has been shown to be safe and combat the effects of inflammation, multi-morbidity, and long-term effects of antiretroviral therapy among people living with HIV. However, people living with HIV often fail to meet recommended guidelines for PA. It is recommended that people living with HIV engage in 20-40 minutes of combined aerobic and resistance training at least three times per week. Supervised PA interventions in the uninfected population have produced greater increases in muscular strength, cardiovascular fitness, and body composition compared to control study participants. The purpose of this review was to investigate whether supervised PA interventions improved functional capacity among adults living with HIV.

Methods: The Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines were followed for this review. Five databases were searched for randomized controlled trials in English, with adults aged 18 and over, where supervised PA was the intervention. Supervised PA was defined as a physical activity intervention that was supervised by a health care or allied health professional.

Results: The database literature search yielded 8,267 articles. After the title/abstract and full-text screening phases, 15 articles were included in the review. Using the Cochrane Collaboration's tool for assessing risk of bias, most studies fell in the 'low risk of bias' category within and across studies. Combined aerobic and progressive resistance training (PRT) improved strength, cardiovascular, and flexibility outcomes; three of four studies showed no significant improvements with aerobic interventions; PRT improved strength outcomes in all studies; yoga or combined yoga/meditation showed no difference between intervention and control groups; and, t'ai chi showed improvements in cardiovascular and flexibility outcomes.

Conclusions: Supervised PA interventions increase functional capacity among adults living with HIV. Combined aerobics and PRT showed improvements in strength, cardiovascular, and flexibility outcomes. Self-reported measures showed inconsistent results of functional capacity across studies.

SR/MA	
Citation: Poton R, Polito M, Farinatti P. Effects of resistance training in HIV-infected patients: A meta-analysis of randomised controlled trials. Journal of sports sciences. 2017 Dec 17;35(24):2380-9.	
Purpose: The purpose of this study was to perform a meta-analysis to determine the effects of RT upon muscle strength, muscle mass and CD4 cells count and to identify potential moderators of those outcomes in HIV-infected patients.	Abstract: Background: The relative effects of resistance training (RT) upon muscle fitness and immune function among HIV infected patients are uncertain. The purpose of this study was to perform a meta-analysis to determine the effects of RT upon muscle strength, muscle mass and CD4 cells count and to identify potential moderators of those outcomes in HIV-infected patients. Methods: Meta-analyses use random or fixed-effects model depending on the heterogeneity of effect sizes, complemented with Hedge's g correction factor. Thirteen trials were meta-analysed. Results: Overall, RT increased muscle strength (35.5%, P < 0.01) and CD4 cell count (26.1%, P = 0.003) versus controls (P < 0.03), but not muscle mass (P = 0.051). Meta-regression followed by subgroup moderator analysis showed that gains in muscle strength followed a dose– response pattern with largest increase detected among trials with longer (24 weeks; 49.3%) than shorter intervention (< 0.01). Conclusions: RT appears to be efficacious to improve muscular strength (~35.5%) and CD4 cell count (~26.1%), but not muscle mass of HIV infected patients. Effects upon strength were greater in studies with higher quality and among trials with longer RT and HAART.
Timeframe: Up to June 2016	
Total # studies included: 13	
Other details (e.g. definitions used, exclusions etc)	
Outcomes addressed: Body composition, Fitness and functional capacity, Viral load/CD4 + count	

SR	
Citation: Gomes Neto M, Ogalha C, Andrade AM, Brites C. A systematic review of effects of concurrent strength and endurance training on the health-related quality of life and cardiopulmonary status in patients with HIV/AIDS. BioMed Research International. 2013b;2013.	
Purpose: To determine the effects of concurrent strength and endurance training (concurrent training) on the Health-Related Quality of Life (HRQOL) and cardiopulmonary status among HIV-infected patients, using a systematic search strategy of randomized, controlled trials (RCTs).	Abstract:
Timeframe: From 1950 to August 2012.	Purpose: To determine the effects of concurrent strength and endurance training (concurrent training) on the Health-Related Quality of Life (HRQOL) and cardiopulmonary status among HIV-infected patients, using a systematic search strategy of randomized, controlled trials (RCTs).
Total # studies included: 8	Methods: A systematic review was performed by two independent reviewers using Cochrane Collaboration protocol. The sources used in this review were Cochrane Library, EMBASE, LILACS, MEDLINE, PEDro and Web of Science from 1950 to August 2012. The PEDro score was used to evaluate methodological quality.
Other details (e.g. definitions used, exclusions etc)	Result: Individual studies suggested that concurrent training contributed to improved HRQOL and cardiovascular status. Concurrent training appears to be safe and may be beneficial for medically stable adults living with HIV. The rates of non-adherence were of 16%.
Outcomes addressed: HRQOL, Fitness and functional capacity	Conclusion: Concurrent training improves the HRQOL and cardiopulmonary status. It may be an important intervention in the care and treatment of adults living with HIV. Further research is needed to determine the minimal and optimal duration, frequency, and intensity of exercise needed to produce beneficial changes in the HIV-infected population subgroups.

SR	
Citation: Phillipas S, Cherry CL, Cicuttini F, Smirneos L, Holland AE. The effects of exercise training on metabolic and morphological outcomes for people living with HIV: a systematic review of randomised controlled trials. HIV Clinical Trials. 2010 Oct 1;11(5):270-82.	
Purpose: To determine the effects of exercise on metabolic and morphological outcomes among people with HIV using a systematic search strategy of randomized, controlled trials (RCTs).	Abstract: Purpose: To determine the effects of exercise on metabolic and morphological outcomes among people with HIV using a systematic search strategy of randomized, controlled trials (RCTs). Methods: Two independent reviewers assessed studies using a predetermined protocol. Results: Nine RCTs (469 participants, 41% females) of moderate quality were included. Compared to non-exercising controls, aerobic exercise (AE) resulted in decreased body mass index (weighted mean difference [WMD] -1.31; 95% CI, -2.59, -0.03; n=186), triceps skinfold thickness of subcutaneous fat (WMD -1.83 mm; 95% CI, -2.36, -1.30; n=144), total body fat (%) (standardised mean difference [SMD], -0.37; 95% CI, -0.74, -0.01; n=118), waist circumference (SMD -0.74 mm, 95% CI, -1.08, -0.39; n=142), and waist:hip ratio (SMD -0.94; 95% CI, -1.30, -0.58; n=142). Progressive resistive exercise (PRE) resulted in increased body weight (5.09 kg; 95% CI, 2.13, 8.05; n=46) and arm and thigh girth (SMD 1.08 cm; 95% CI, 0.35, 1.82; n=46). Few studies examined blood lipids, glucose, and bone density.
Timeframe: From 1980 to November 2009	Conclusions: Few RCTs exist and their quality varies. AE decreases adiposity and may improve certain lipid subsets. PRE increases body weight and limb girth. No additional effects of combining AE and PRE are evident. Larger, higher quality trials are needed to understand the effects of exercise on metabolic outcomes (eg, lipids, glucose, bone density) relevant to persons with chronic, treated HIV.
Total # studies included: 9	
Other details (e.g. definitions used, exclusions etc)	
Outcomes addressed: Body composition, Cardiometabolic markers	

SR/MA	
Citation: Heissel A, Zech P, Rapp MA, Schuch FB, Lawrence JB, Kangas M, Heinze S. Effects of exercise on depression and anxiety in persons living with HIV: A meta-analysis. Journal of Psychosomatic Research. 2019 Sep 2:109823.	
Purpose: The purpose of this systematic review and meta-analysis was to examine the effects of exercise on depression and anxiety in people living with HIV (PLWH), and to evaluate, through subgroup analysis, the effects of exercise type, frequency, supervision by exercise professionals, study quality, and control group conditions on these outcomes.	Abstract: Objective: The purpose of this systematic review and meta-analysis was to examine the effects of exercise on depression and anxiety in people living with HIV (PLWH), and to evaluate, through subgroup analysis, the effects of exercise type, frequency, supervision by exercise professionals, study quality, and control group conditions on these outcomes. Method: A literature search was conducted through four electronic databases from inception to February 2019. Considered for inclusion were randomized controlled trials (RCTs) investigating exercise interventions and depression or anxiety as outcomes in people living with HIV (≥ 18 years of age). Ten studies were included ($n = 479$ participants, 49.67% females at baseline), and the standardized mean difference (SMD) and heterogeneity were calculated using random-effect models. An additional pre-post meta-analysis was also conducted. Results: A large effect in favour of exercise when compared to controls was found for depression (SMD = -0.84 , 95%CI = $[-1.57, -0.11]$, $p = 0.02$) and anxiety (SMD = -1.23 , 95%CI = $[-2.42, -0.04]$, $p = 0.04$). Subgroup analyses for depression revealed large effects on depression for aerobic exercise only (SMD = -0.96 , 95%CI = $[-1.63, -0.30]$, $p = 0.004$), a frequency of ≥ 3 exercise sessions per week (SMD = -1.39 , 95%CI = $[-2.24, -0.54]$, $p < 0.001$), professionally supervised exercise (SMD = -1.40 , 95%CI = $[-2.46, -0.17]$, $p = 0.03$), and high-quality studies (SMD = -1.31 , 95%CI = $[-2.46, -0.17]$, $p = 0.02$). Conclusion: Exercise seems to decrease depressive symptoms and anxiety in PLWH, but other larger and high quality studies are needed to verify these effects.
Timeframe: Up to February 2019	
Total # studies included: 10	
Other details (e.g. definitions used, exclusions etc)	
Outcomes addressed: Anxiety/Depression	

SR	
Citation: Quiles NN, Piao L, Ortiz A. The effects of exercise on lipid profile and blood glucose levels in people living with HIV: A systematic review of randomized controlled trials. <i>AIDS Care</i> . 2019 Sep 14:1-8.	
Purpose: This systematic review was performed in order to examine the effects of exercise interventions on lipid profile and glucose levels on PLWH	Abstract: Background: Exercise is commonly prescribed to improve lipid profile and glucose levels in people living with HIV (PLWH). This systematic review was performed in order to examine the effects of exercise interventions on lipid profile and glucose levels on PLWH. Methods: Randomized controlled trials (RCTs) investigating the effects of exercise on blood glucose, triglycerides (TG), total cholesterol (TC), HDL and LDL published up to November 2017 were reviewed. Two reviewers assessed inclusion and exclusion criteria, methodological quality and extracted the data. The PEDro scale was used to assess the quality of the included studies. Results: Nine RCTs involving 638 PLWH met inclusion criteria. The median PEDro scale score was 5 out of 10. Three combined aerobic exercise + resistance exercise studies (AE+RE) showed improvements in blood glucose levels, one study showed improvements in HDL, one showed improvements in TG, and one showed improvements in TC. The AE only study reported improvements in HDL, while the RE only study reported improvements in TG, TC, HDL and LDL. Conclusions: Exercise can be effective for the improvement of some metabolic parameters, especially blood glucose and HDL. However, due to methodological issues, small number of studies and differences in exercise protocols, these findings should be interpreted with caution.
Timeframe: From January 1980 to November 2017	
Total # studies included: 9	
Other details (e.g. definitions used, exclusions etc)	
Outcomes addressed: Cardiometabolic markers	

SR/MA	
Citation: Chaparro CG, Zech P, Schuch F, Wolfarth B, Rapp M, Heißel A. Effects of aerobic and resistance exercise alone or combined on strength and hormone outcomes for people living with HIV. A meta-analysis. PloS One. 2018 Sep 4;13(9):e0203384.	
Purpose: To examine the effect of RT alone or combined with AE on strength parameters and hormones amongst PLWHA	Abstract: Background: Infection with human immunodeficiency virus (HIV) affects muscle mass, altering independent activities of people living with HIV (PLWH). Resistance training alone (RT) or combined with aerobic exercise (AE) is linked to improved muscle mass and strength maintenance in PLWH. These exercise benefits have been the focus of different meta-analyses, although only a limited number of studies have been identified up to the year 2013/4. An up-to-date systematic review and meta-analysis concerning the effect of RT alone or combined with AE on strength parameters and hormones is of high value, since more and recent studies dealing with these types of exercise in PLWH have been published. Methods: Randomized controlled trials evaluating the effects of RT alone, AE alone or the combination of both (AERT) on PLWH was performed through five web-databases up to December 2017. Risk of bias and study quality was attained using the PEDro scale. Weighted mean difference (WMD) from baseline to post-intervention changes was calculated. The I ² statistics for heterogeneity was calculated. Results: Thirteen studies reported strength outcomes. Eight studies presented a low risk of bias. The overall change in upper body strength was 19.3 Kg (95% CI: 9.8–28.8, p< 0.001) after AERT and 17.5 Kg (95% CI: 16–19.1, p< 0.001) for RT. Lower body change was 29.4 Kg (95% CI: 18.1–40.8, p< 0.001) after RT and 10.2 Kg (95% CI: 6.7–13.8, p< 0.001) for AERT. Changes were higher after controlling for the risk of bias in upper and lower body strength and for supervised exercise in lower body strength. A significant change towards lower levels of IL-6 was found (-2.4 ng/dl (95% CI: -2.6, -2.1, p< 0.001). Conclusion: Both resistance training alone and combined with aerobic exercise showed a positive change when studies with low risk of bias and professional supervision were analyzed, improving upper and, more critically, lower body muscle strength. Also, this study found that exercise had a lowering effect on IL-6 levels in PLWH.
Timeframe: Up to December 2017	
Total # studies included: 13	
Other details (e.g. definitions used, exclusions etc)	
Outcomes addressed: Fitness and Functional capacity	

SR	
Citation: Nosrat S, Whitworth JW, Ciccolo JT. Exercise and mental health of people living with HIV: A systematic review. Chronic illness. 2017 Dec;13(4):299-319.	
Purpose: This study aimed to conduct a systematic literature review of the effects of exercise on mental health in people living with HIV.	Abstract:
Timeframe: Variable start dates to November 2016.	Objective: Mental illness is highly prevalent among people living with HIV. Poor mental health is linked to HIV disease progression, making the treatment of mental illness alongside HIV essential. While the benefits of exercise on the physical health of people living with HIV are well established, the effect of exercise on mental health in this population is less examined. Therefore, this study aimed to conduct a systematic literature review of the effects of exercise on mental health in people living with HIV.
Total # studies included: 24	Methods: A search of electronic databases (PubMed, Web of Science, PsycINFO) through 30 November 2016 was completed. The methodological framework for scoping studies was used to conduct the review process. RISMA guidelines were used to report the results.
Other details (e.g. definitions used, exclusions etc)	Results: The search resulted in 2273 articles and 52 were determined to be relevant. After review of the full text of potentially relevant studies, 24 studies were included for the analysis.
Outcomes addressed: HRQOL, anxiety/depression	Discussion: Both aerobic and resistance exercise have independent and combined positive effects on various indicators of mental health in people living with HIV. Major limitations include high attrition rate, small sample size, and poor study designs. Higher quality studies with more diverse populations such as women, older adults, and transgender individuals are required.

SR	
Citation: Gomes-Neto M, Conceicao CS, Carvalho VO, Brites C. A systematic review of the effects of different types of therapeutic exercise on physiologic and functional measurements in patients with HIV/AIDS. Clinics. 2013a;68(8):1157-67.	
Purpose: The aim of this study was to determine the effects of different types of exercise on physiologic and functional measurements in patients with HIV using a systematic strategy for searching randomized controlled trials.	Abstract: Background: Several studies have reported the benefits of exercise training for adults with HIV, although there is no consensus regarding the most efficient modalities. The aim of this study was to determine the effects of different types of exercise on physiologic and functional measurements in patients with HIV using a systematic strategy for searching randomized controlled trials. Methods: The sources used in this review were the Cochrane Library, EMBASE, MEDLINE, and PEDro from 1950 to August 2012. We selected randomized controlled trials examining the effects of exercise on body composition, muscle strength, aerobic capacity, and/or quality of life in adults with HIV. Two independent reviewers screened the abstracts using the Cochrane Collaboration's protocol. The PEDro score was used to evaluate methodological quality. In total, 29 studies fulfilled the inclusion criteria. Results: Individual studies suggested that exercise training contributed to improvement of physiologic and functional parameters, but that the gains were specific to the type of exercise performed. Resistance exercise training improved outcomes related to body composition and muscle strength, with little impact on quality of life. Aerobic exercise training improved body composition and aerobic capacity. Concurrent training produced significant gains in all outcomes evaluated, although moderate intensity and a long duration were necessary. Conclusion: We concluded that exercise training was shown to be a safe and beneficial intervention in the treatment of patients with HIV.
Timeframe: Variable start dates to August 2012.	
Total # studies included: 29	
Other details (e.g. definitions used, exclusions etc)	
Outcomes addressed: Body composition, HRQOL, Fitness and functional capacity	

SR	
Citation: Lopez J, Richardson E, Tiozzo E, Lantigua L, Martinez C, Abreut G, Prendergast T, Atlas SE, Pangilinan AR, Ferris SM, Martinez AH. The effect of exercise training on disease progression, fitness, quality of life, and mental health in people living with HIV on antiretroviral therapy: a systematic review. <i>Journal of Clinical and Translational Research</i> . 2015 Dec 30;1(3):129.	
Purpose: To summarize the findings on the effects of aerobic or resistance training alone or combined aerobic and resistance exercise training (CARET) on disease progression, fitness, physical functioning, mental health, and quality of life (QOL) in PLWH receiving ART.	Abstract: Background: Exercise has been associated with improvements in adverse physiological and psychological effects of long-term antiretroviral therapy (ART) in people living with HIV (PLWH). Aim: To summarize the findings on the effects of aerobic or resistance training alone or combined aerobic and resistance exercise training (CARET) on disease progression, fitness, physical functioning, mental health, and quality of life (QOL) in PLWH receiving ART. A systematic search of articles was performed in several databases, and 20 articles that met inclusion criteria were summarized. Relevance for patients: Aerobic exercise was associated with improvements in aerobic capacity, QOL, and depressive symptoms, while resistance training improved strength. CARET was related to improved aerobic fitness, strength, physical functioning, QOL, and self-efficacy. At least one of the exercise interventions resulted in improvements in CD4+ cell count and HIV RNA viral load. Moreover, another study showed that HIV-specific biomarkers remained unchanged in the exercise intervention group, while they significantly worsened in the non-exercise group. In general, in spite of their well-known benefits, exercise programs have not been extensively utilized or widely recognized as viable therapeutic treatment options for this patient population. Knowing the possible health benefits of increasing physical activity level is important to better recommend exercise programs. However, the prescription must be done carefully and on an individual basis. Additional studies investigating the efficiency and effectiveness of different exercise training regimens for PLWH are needed.
Timeframe: From 1996 to 2015.	
Total # studies included: 18	
Other details (e.g. definitions used, exclusions etc)	
Outcomes addressed: HRQOL, Anxiety/Depression, Fitness and functional capacity, Viral load/CD4+ count	

SR	
Citation: Lofgren SM, Nakasujja N, Boulware DR. Systematic review of interventions for depression for people living with HIV in Africa. <i>AIDS and Behavior</i> . 2018 Jan 1;22(1):1-8.	
Purpose: To identify depression interventions for HIV-infected adults in Africa.	Abstract: Background: Depression interventions for individuals with HIV/AIDS in Africa are being increasingly evaluated. Methods: MEDLINE was searched using key terms: depression, Africa, and HIV, to identify depression interventions for HIV-infected adults in Africa. Perinatal women were excluded. Results were extracted and relative change in depression scores for interventions and net effect calculated. Results: The MEDLINE search yielded 18 articles. Six of seven studies evaluating feasibility were positive, and seven of seven studies evaluating acceptability were also positive. Three studies investigated the effect of psychotherapy (% relative decrease of depressive symptoms for intervention: %net decrease compared to controls) (73%:39% decrease). Four studies investigated task-shifting of psychotherapy (47%:34% decrease). Three studies evaluated antidepressants (79%:39% decrease). Three studies investigated task-shifting of antidepressant treatment (82%:65% decrease). An exercise intervention was evaluated (66%:49% decrease). One trial investigated minocycline with non-statistically significant results. Finally, three studies investigated other psychosocial interventions (44%:21% decrease). Conclusions: Overall, the results highlight the need for large, randomized trials to establish efficacy as well as implementation studies.
Timeframe: Up to February 2017	
Total # studies included: 18	
Other details (e.g. definitions used, exclusions etc)	
Outcomes addressed: Anxiety/Depression	

SR	
Citation: Leyes P, Martínez E, Forga MD. Use of diet, nutritional supplements and exercise in HIV-infected patients receiving combination antiretroviral therapies: a systematic review. <i>Antiviral Therapy</i> . 2008 Jan 1;13(2):149.	
Purpose: To examine the the effects of diet, nutrition support and exercise on body composition and metabolic complications in patients receiving cART	Abstract: Background: The use of combination of antiretroviral therapy (cART) has improved the prognosis of HIV infections, but it has also been linked to a spectrum of body composition changes and metabolic alterations known as lipodystrophy syndrome. Nutrition status could influence body composition changes. Method: we performed a systematic search of published peer-reviewed data on the effect on the effects of diet, nutrition support and exercise on body composition and metabolic complications in patients receiving cART Result: Few controlled studies, most of them with small sample size were found. Oral nutritional support increases protein and energy intake, and a results in body weight and fat mass gains. Resistance exercise, with or without aerobic component, increases lean mass and can improve insulin resistance. Low-fat diet or exercise can result in loss of fat mass, and they should be used with caution in subjects with lipoatrophy. Conclusion: Nutritional support and exercise results in small but significant body composition changes and can be used as complementary intervention. There is a need for further research on nutritional intervention in HIV-infected patients receiving cART.
Timeframe: From 1996 onwards	
Total # studies included: 9	
Other details (e.g. definitions used, exclusions etc)	
Outcomes addressed: Body composition, Fitness and functional capacity, Viral load/CD4+ count	