



European
AIDS Treatment
Group



“HIV and Exercise”

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NHS Foundation Trust

#RehabHIV

**@darrenabrown @ChelWestTherapy @RehabHIV @IPTHOPE @CIHRRRC
@MResClin**

CONTENTS



- 1** } What is **Exercise**?
- 2** } What has **Exercise** got to do with living with HIV?
- 3** } What do we know about **Exercise** among people living with HIV?
- 4** } What we can all do to support people to **Exercise**

What Is Exercise?



a) Planned, structured, intentional, repetitive bodily movements designed to maintain or improve fitness.



EXERCISE



b) Any body movements carried out by skeletal muscles that requires energy.



PHYSICAL ACTIVITY



Physical activity strategy for the WHO European Region 2016-2025



Working document



Global Recommendations on Physical Activity for Health

18-64 years old

These guidelines are relevant to all healthy adults aged 18-64 years, unless specific medical conditions indicate to the contrary, irrespective of gender, race, ethnicity or income level. They also apply to individuals in this age range with chronic noncommunicable conditions not related to mobility such as hypertension or diabetes. These recommendations can be applied to adults with disabilities. However they may need to be adjusted for each individual based on their exercise capacity and specific health needs. Pregnant, postpartum women and persons with cardiac events may need to take extra precautions and seek medical advice before striving to achieve the recommended levels of physical activity for this age group.

Strong evidence demonstrates that compared to less active adult men and women, individuals who are more active:

- have lower rates of all-cause mortality, coronary heart disease, high blood pressure, stroke, type 2 diabetes, metabolic syndrome, colon and breast cancer, and depression;
- are likely to have less risk of a hip or vertebral fracture;
- exhibit a higher level of cardiorespiratory and muscular fitness; and
- are more likely to achieve weight maintenance, have a healthier body mass and composition.

Recommendations:

In adults aged 18-64, physical activity includes leisure time physical activity, transportation (e.g. walking or cycling), occupational (i.e. work), household chores, play, games, sports or planned exercise, in the context of daily, family, and community activities.

The recommendations in order to improve cardiorespiratory and muscular fitness, bone health, reduce the risk of NCDs and depression are:

1. Adults aged 18-64 should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week **or** do at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week **or** an equivalent combination of moderate - and vigorous-intensity activity.
2. Aerobic activity should be performed in bouts of at least 10 minutes duration.
3. For additional health benefits, adults should increase their moderate-intensity aerobic physical activity to 300 minutes per week, **or** engage in 150 minutes of vigorous-intensity aerobic physical activity per week, **or** an equivalent combination of moderate - and vigorous-intensity activity.
4. Muscle-strengthening activities should be done involving major muscle groups on 2 or more days a week.


Inactive people should start with small amounts of physical activity and gradually increase duration, frequency and intensity over time. Inactive adults and those with disease limitations will have added health benefits when they become more active.





For further information see: <http://www.who.int/dietphysicalactivity/pa/en/index.html> or contact WHO on dietandhealth@who.int




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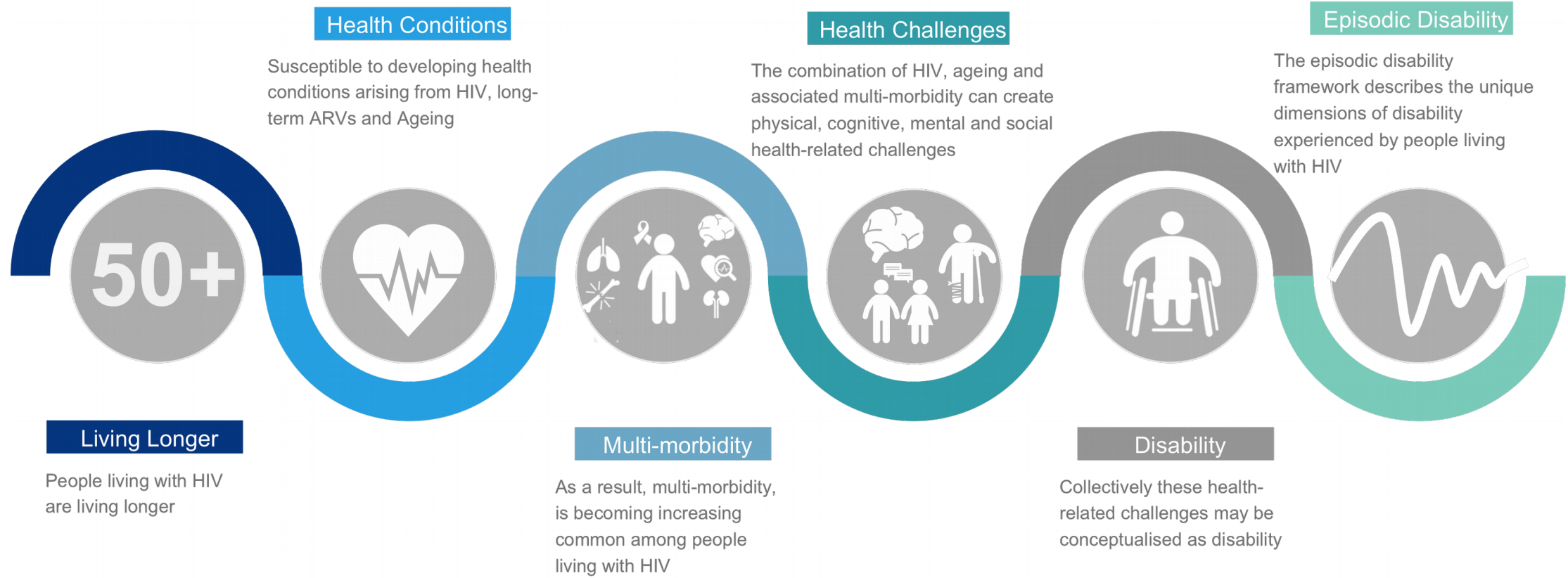

30 mins

    **x5**
Moderate-intensity activity per week

or


15 mins

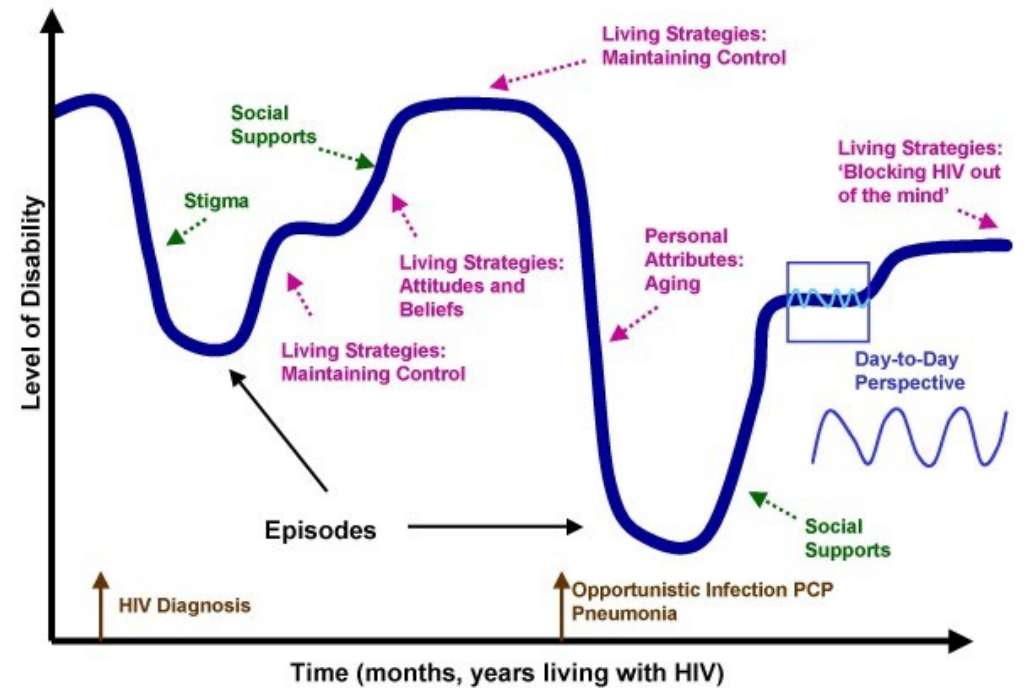
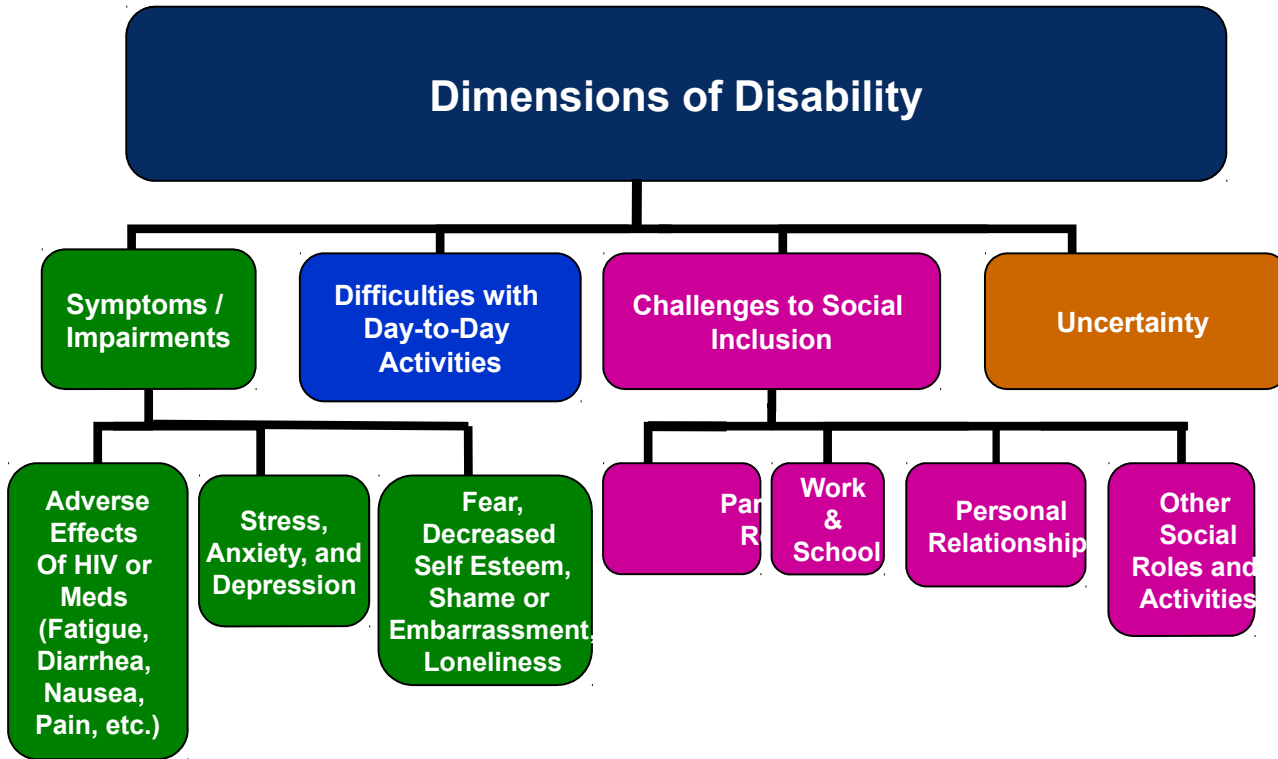
    **x5**
High-intensity activity per week



Living Longer

People living with HIV are living longer

Functioning



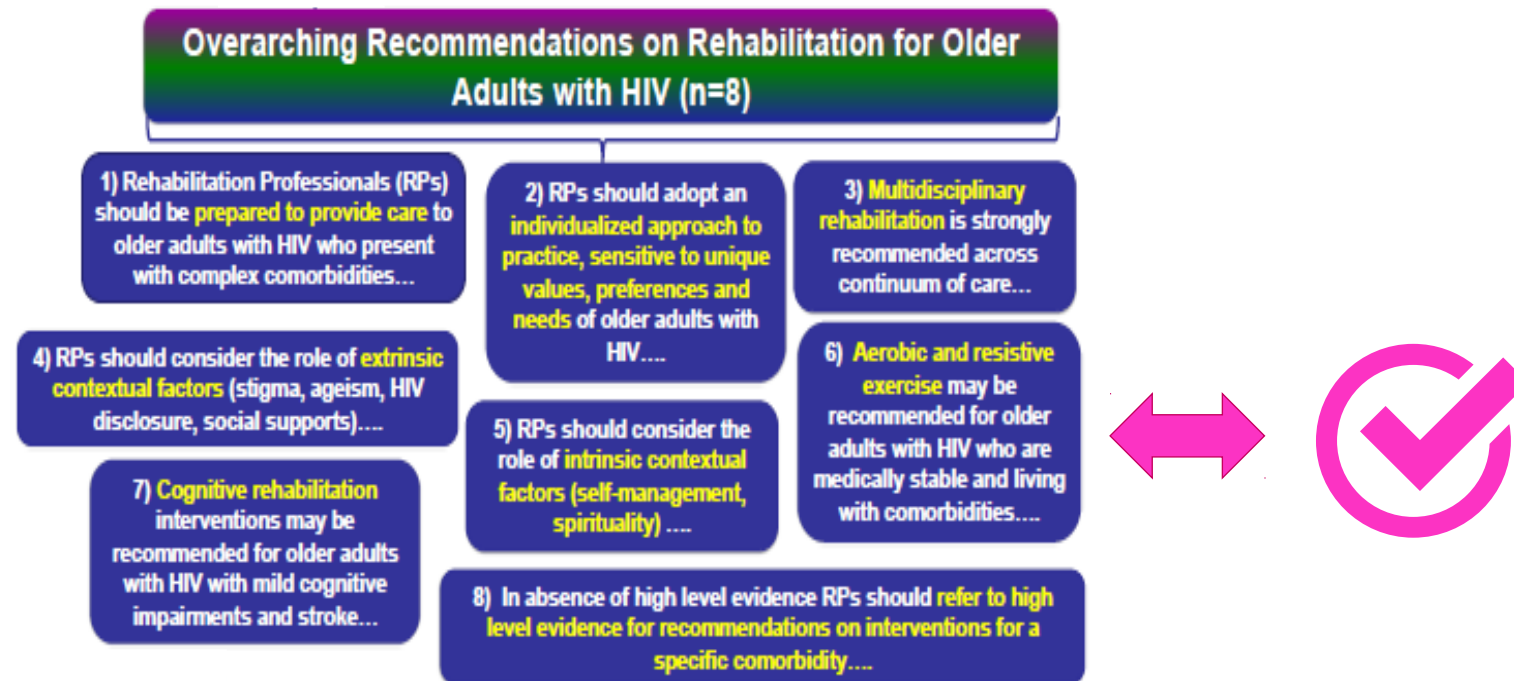


Open Access

Research

BMJ Open Evidence-informed recommendations for rehabilitation with older adults living with HIV: a knowledge synthesis

Kelly K O'Brien,^{1,2,3} Patricia Solomon,² Barry Trentham,⁴ Duncan MacLachlan,⁵ Joy MacDermid,² Anne-Marie Tynan,⁶ Larry Baxter,³ Alan Casey,⁷ William Chegwidan,⁸ Greg Robinson,³ Todd Tran,⁹ Janet Wu,⁶ Elisse Zack³







Schuelter-Trevisol *et al.* *Curr HIV Res*
2012; 10(6):487-97 DOI: 10.2174/157016212802429794
<http://www.ncbi.nlm.nih.gov/pubmed/22762420>



[Disabil Rehabil.](#) 2016 Dec 8:1-10. doi: 10.1080/09638288.2016.1260645. [Epub ahead of print]

Global physical activity levels among people living with HIV: a systematic review and meta-analysis.

[Vancampfort D](#)^{1,2}, [Mugisha J](#)^{3,4}, [De Hert M](#)², [Probst M](#)¹, [Firth J](#)⁵, [Gorczyński P](#)⁶, [Stubbs B](#)^{7,8}.

Meta-analysis; Across 24 studies there were 3780 (2471♂) PLWH (mean age range: 37-58 years):

- PLWH spent 98.9 min/day being physically active which is **lower than in most other populations with chronic diseases**
- **50.7% of PLWH complied** with the PA guidelines of 150 min moderate intensity PA/week
- Number of steps walked per day was 5,899, which **is below 10,000 recommendation**

Considerations:

- *PLWH are insufficiently physically active.*
- *Future lifestyle interventions specifically targeting the prevention of physical inactivity in PLWH are warranted.*
- *Many PLWH do not comply with general health recommendations. Physical activity counseling should be key in the rehabilitation of PLWH.*



J Phys Act Health. 2017 Jul;14(7):571-577. doi: 10.1123/jpah.2016-0507. Epub 2017 Mar 14.

Sedentary Behavior in People Living With HIV: A Systematic Review and Meta-Analysis.

Vancampfort D, Mugisha J, De Hert M, Probst M, Stubbs B.

- Sedentary behaviour is independently associated with increased risk of poor mental health, CVD and premature mortality
- Across 6 studies 523 PLWH (292♂) (mean age range: 37-58 years)
- This meta-analysis aimed to determine;
 - Mean time spent sedentary among PLWH
 - Predictors of sedentary behaviour
 - Differences between age- and gender-matched controls

Considerations:

- ***Mean time spent sedentary by PLWH is among the highest reported in the literature***
- ***PLWH spent 533min/day engaging in sedentary behaviour***
- ***Therefore future lifestyle interventions specifically targeting the prevention of sedentary behaviour among PLWH is warranted***



[Prev Med](#). 2016 Dec;93:106-114. doi: 10.1016/j.ypmed.2016.10.001. Epub 2016 Oct 3.

Cardiorespiratory fitness levels and moderators in people with HIV: A systematic review and meta-analysis.

[Vancampfort D](#)¹, [Mugisha J](#)², [Rosenbaum S](#)³, [Firth J](#)⁴, [De Hert M](#)⁵, [Probst M](#)⁶, [Stubbs B](#)⁷.

- Cardiorespiratory fitness (maximum of peak oxygen uptake eg: VO₂ ml/kg/min) is a modifiable risk factor of cardiovascular disease and premature mortality
- This meta-analysis of 21 studies aimed to determine;
 - Cardiorespiratory fitness in PLWH compared to age- and gender-matched healthy controls
 - Explore moderators of Cardiorespiratory fitness
 - Explore moderators of Cardiorespiratory fitness following physical activity interventions

Considerations:

- ***Cardiorespiratory fitness was 26.4ml/kg/min (n=1010, mean age=41yrs) - Note enough data to compare to controls***
- ***Moderators of lower Cardiorespiratory fitness levels; Increased Body Mass Index (BMI), Older age, Presence of lipodystrophy***
- ***Predictors of better Cardiorespiratory fitness levels following physical activity interventions; Higher CD4, supervised interventions and interventions with lower frequency of weekly sessions (2 or 3 vs 4)***
- ***Consequently Cardiorespiratory fitness levels are the lowest in comparison to other vulnerable populations***



PLWH are the most sedentary population of people living with a chronic health condition, resulting in the worst cardiorespiratory fitness levels



O'Brien et al. *BMC Infectious Diseases* (2016) 16:182
DOI 10.1186/s12879-016-1478-2

BMC Infectious Disease: [Cochrane Database Syst Rev. 2001;\(1\):CD001796.](#)

RESEARCH ARTICLE

Open Access

Effectiveness of aerobic exercise for adults living with HIV: systematic review and meta-analysis using the Cochrane Collaboration protocol

Kelly K. O'Brien^{1,2,3*}, Anne-Marie Tynan⁴, Stephanie A. Nixon^{1,2} and Richard H. Glazier^{3,4,5,6,7}

O'Brien et al. *BMC Infectious Diseases* (2017) 17:268
DOI 10.1186/s12879-017-2342-8

BMC Infectious Disease:

RESEARCH ARTICLE

Open Access

Effectiveness of Progressive Resistive Exercise (PRE) in the context of HIV: systematic review and meta-analysis using the Cochrane Collaboration protocol

Kelly K. O'Brien^{1,2,3*}, Anne-Marie Tynan⁴, Stephanie A. Nixon^{1,2} and Richard H. Glazier^{3,4,5,6,7}

[Cochrane Database Syst Rev. 2001;\(1\):CD001796.](#)

Aerobic exercise interventions for people with HIV/AIDS.

[Nixon S¹, O'Brien K, Glazier RH, Wilkins AL.](#)



[Cochrane Database Syst Rev. 2002;\(2\):CD001796.](#)

Aerobic exercise interventions for adults living with HIV/AIDS.

[Nixon S¹, O'Brien K, Glazier RH, Tynan AM.](#)

[Cochrane Database Syst Rev. 2004 Oct 18;\(4\):CD004248.](#)

Progressive resistive exercise interventions for adults living with HIV/AIDS.

[O'Brien K¹, Nixon S, Glazier RH, Tynan AM.](#)

[Cochrane Database Syst Rev. 2005 Apr 18;\(2\):CD001796.](#)

Aerobic exercise interventions for adults living with HIV/AIDS.

[Nixon S¹, O'Brien K, Glazier RH, Tynan AM.](#)

[AIDS Care. 2008 Jul;20\(6\):631-53. doi: 10.1080/09540120701661708.](#)



Effects of progressive resistive exercise in adults living with HIV/AIDS: systematic review and meta-analysis of randomized trials.

[O'Brien K¹, Tynan AM, Nixon S, Glazier RH.](#)

[Cochrane Database Syst Rev. 2010 Aug 4;\(8\):CD001796. doi: 10.1002/14651858.CD001796.pub3.](#)

Aerobic exercise interventions for adults living with HIV/AIDS.

[O'Brien K¹, Nixon S, Tynan AM, Glazier R.](#)

2001

2002

2004

2005

2008

2010



Exercise among PLWH leads to improvements in;

- Cardiopulmonary fitness (VO2 max/peak, exercise time)
- Body composition (leg muscle area, % body fat, arm and thigh girth)
- Strength
- Quality of life
- No change in CD4 count or Viral Load

Exercise is SAFE and EFFECTIVE among people living with HIV



Readiness to Engage



Dynamic Construct

Readiness to engage in exercise among PLWH is a dynamic and fluctuating construct.

Episodic Disability

That may be influenced by episodic nature of HIV and multimorbidity (physical impairments, mental health challenges & uncertainty) and 4 subfactors.

Strategies

To facilitate readiness to exercise, should consider the interplay of these factors .

Health Outcomes

In order to enhance physical activity and subsequently improve health outcomes of PLWH and multimorbidity .



Simonik et al. *BMJ Open*
Are you ready? Exploring readiness to engage in exercise among people living with HIV and multimorbidity in Toronto, Canada: a qualitative study
2016; 6:e010029. DOI: 10.1136/bmjopen-2015-010029
<http://bmjopen.bmj.com/content/6/3/e010029.full.pdf+html>





[AIDS Care](#). 2017 May;29(5):636-643. doi: 10.1080/09540121.2016.1248347. Epub 2016 Oct 31.

Dropout from physical activity interventions in people living with HIV: a systematic review and meta-analysis.

[Vancampfort D](#)^{1,2}, [Mugisha J](#)^{3,4}, [Richards J](#)⁵, [De Hert M](#)², [Lazzarotto AR](#)⁶, [Schuch FB](#)⁷, [Probst M](#)¹, [Stubbs B](#)^{8,9}.

- Physical Activity (PA) improves health among PLWH but dropout rates of PA interventions poses an important challenge
- 66 studies including 1128 PLWH (79%♂, 39% white, mean age 41.6 years)
- This meta-analysis aimed to determine;
 - Determine to prevalence and predictors of dropout of PA interventions among PLWH

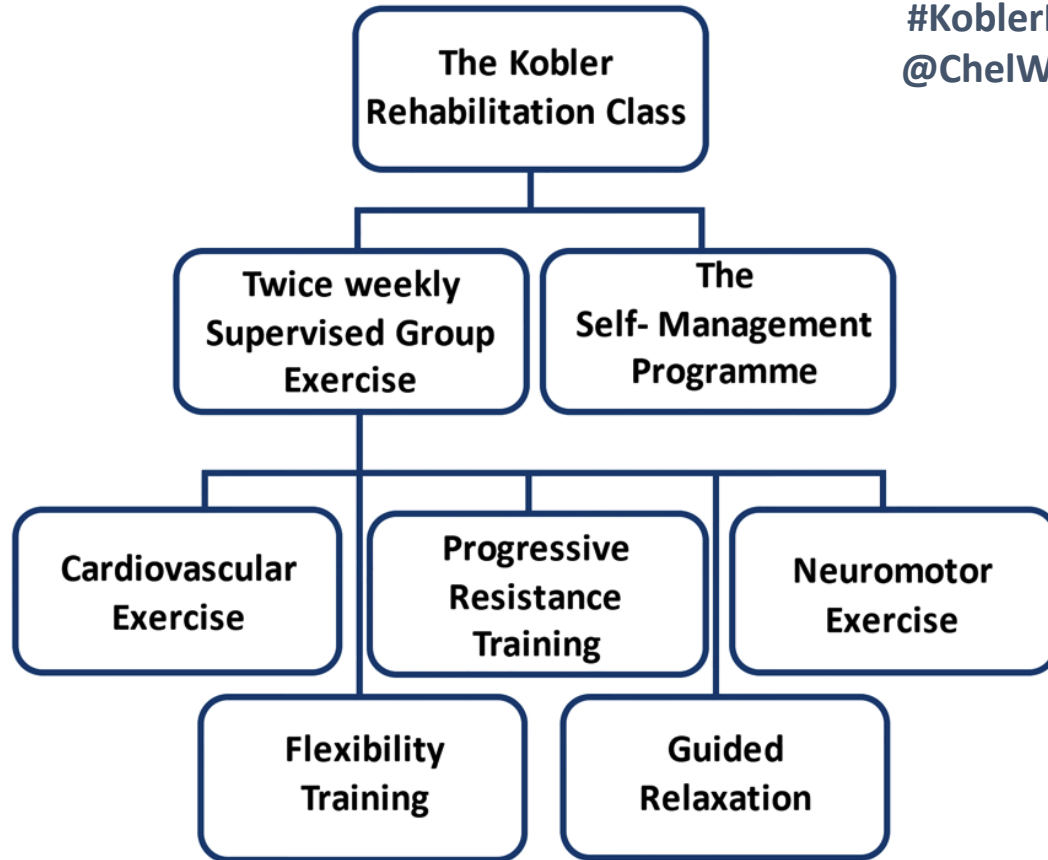
Considerations:

- ***Lower dropout rate of resistance Vs aerobic supervised interventions***
- ***Variables that moderated increased dropout rates; reduced % male participants, lower BMI, reduced Cardiorespiratory fitness***
- ***Dropout from PA interventions higher among PLWH than many other health populations***
- ***Qualified professionals (exercise physiologists, physical educators and Physiotherapists) should be incorporated as key care providers in the MDT of HIV/AIDS services; and should prescribe supervised PA for PLWH in order to enhance adherence and reduce burden of HIV/AIDS***
- ***Special attention should be given to men, those with reduced BMI and low Cardiorespiratory fitness***



www.chelwest.nhs.uk/hivrehab

#KoblerRehabClass
@ChelWestTherapy



Brown et al, 2016

www.ncbi.nlm.nih.gov/pubmed/27264319



Locomotor Performance



86m (p<0.001)

Exceeding clinically important difference in COPD, heart failure, stroke survivors and community dwelling older adults

Strength



Triceps (P<0.001)
biceps (P<0.001)
Lattisimus dorsi (P<0001)
SHOULDER PRES (P<0.001)
CHEST PRESS (P<0.001)
LEG PRESS (P<0.001)

Health Related Quality of Life



Physical well being (p<0.001)
Emotional well being (p<0.001)
FUNCTIONAL/GLOBAL WELL BEING (p=0.065)
SOCIAL WELL BEING
COGNITIVE FUNCTIONING

Flexibility



8cm (p<0.001)

Goal Attainment



64%

Achieved all goals
Average = 3 goals

Brown et al, 2016

www.ncbi.nlm.nih.gov/pubmed/27264319



www.makeeverycontactcount.co.uk/

www.nhs.uk/livewell/fitness

@darrenabrown

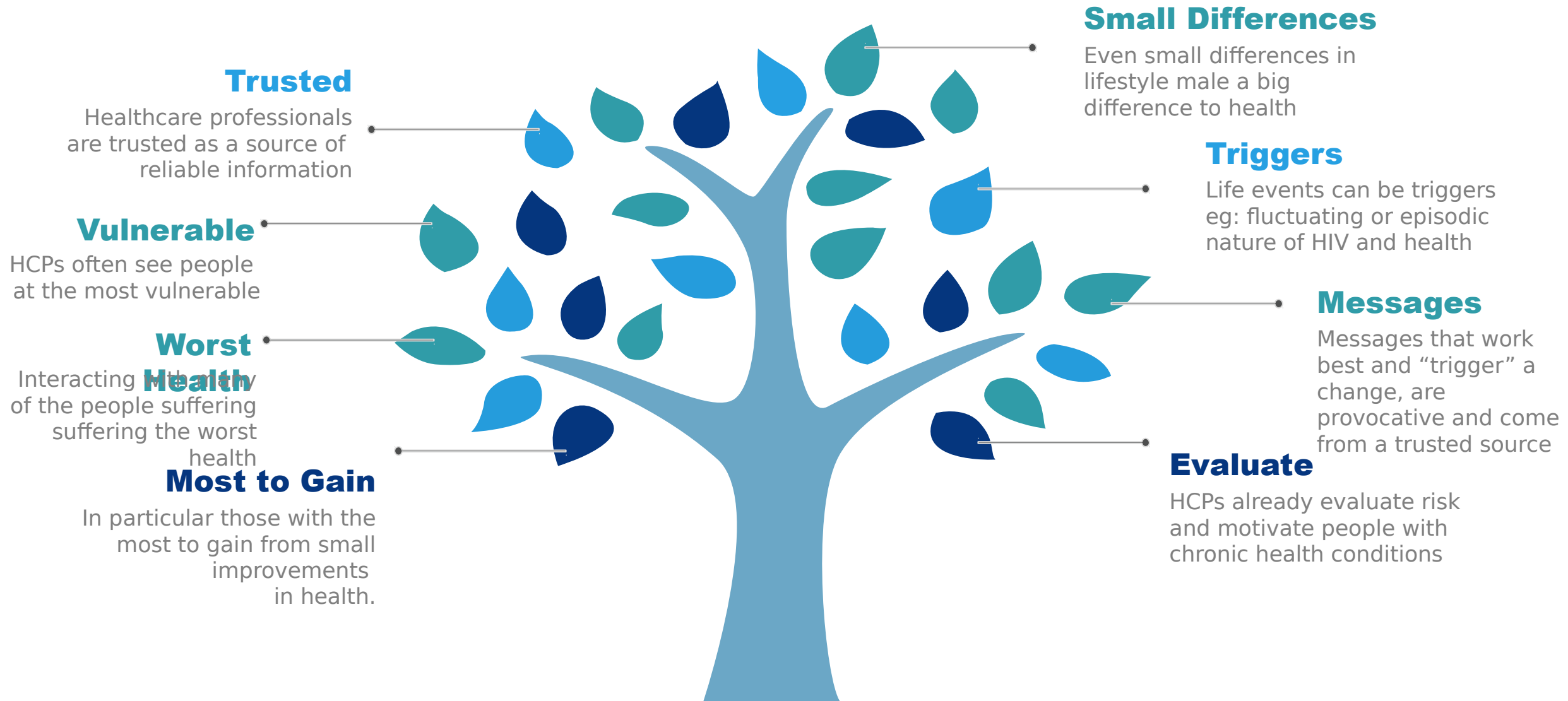


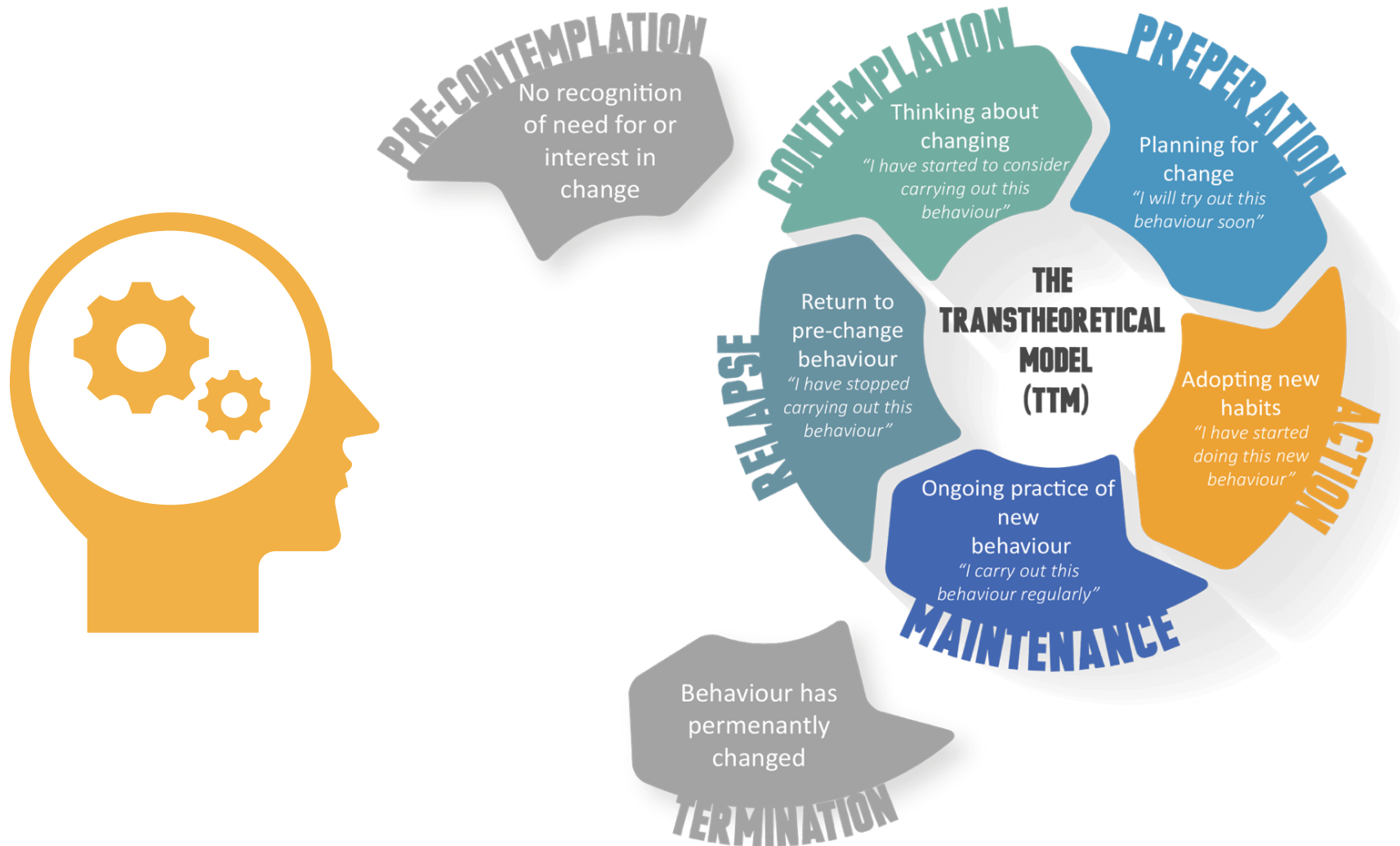
TURN A 10 MINUTE **WALK**
INTO 10 MINUTES' EXERCISE

BECAUSE THERE'S ONLY
ONE YOU



www.nhs.uk/oneyou/active10







- 1** } **Exercise** is safe and effective
- 2** } High levels of sedentary behaviour among People living with HIV
- 3** } **Exercise** and **Physical Activity** are important modifiable lifestyle factors to improve health and well-being
- 4** } Everybody has a role in supporting people living with HIV to achieve the benefits of **Moving More**



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Thank You

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