

HUMAN IMMUNODEFICIENCY VIRUS (HIV) AND EXERCISE

WHAT IS HIV?

HIV is a disease that is most commonly contracted through unprotected sexual intercourse and, to a lesser extent, sharing needles and syringes. People infected with the virus present with various immunological irregularities including immune suppression, chronic inflammation and autoimmune disorders ⁽¹⁾. Classical symptoms of HIV include persistent (i.e. > 1 month) flu-like symptoms; extreme and constant tiredness; anxiety and depression; fevers, chills and night sweats; unexplained rapid weight loss; swollen lymph glands; skin abnormalities; continuous coughing; diarrhoea and reduced appetite. People with HIV may not have symptoms, but they still carry the virus, and can transmit it to others. Without treatment, HIV can progress to acquired immune deficiency syndrome (AIDS) over a period of 10-15 years. HIV is typically treated with five main types of so-called 'antiretroviral' medication that target different stages of the lifecycle of the virus. Adherence to medication is critical, because if treatments are not taken properly, the virus can become resistant to medication. However, medication is not without side-effects, and this has stimulated interest in complementary treatment strategies such as exercise ⁽²⁾.

HOW DOES EXERCISE HELP PEOPLE WITH HIV?

Although advances in medication have greatly improved the life expectancy of people with HIV, medication has also turned HIV into a chronic disease associated with various co-morbidities ⁽³⁾. These co-morbidities can reduce exercise capacity and impair activities of daily living in people with HIV. A systematic review of the effects of exercise training revealed both physiological and psychological benefits of exercise training for people with HIV ⁽³⁾. Based on the small number of studies that met the strict criteria for inclusion in the systematic review (31 out of 59 studies), exercise training for people with HIV appears to be effective for improving physiological variables including:

- cardiorespiratory fitness (i.e., aerobic capacity, maximum heart rate, submaximal heart rate and resting heart rate)
- body composition (i.e., lean body mass, muscle cross-sectional area; waist-to-hip ratio, body weight, bone mineral density)
- functional capacity (i.e., muscular strength, 6 minute walk performance, time to fatigue)

Depression and anxiety associated with having HIV may serve to further suppress the immune system and reduce adherence to medication ⁽⁴⁾. Exercise training for people with HIV helps to improve psychological variables such as:

- anxiety and depression
- quality of life
- mood states
- hope and desire to continue living



IS EXERCISE SAFE FOR PEOPLE WITH HIV?

Estimates of the rates of physical activity or participation in formal exercise training among people with HIV vary widely ⁽⁵⁾. People with HIV should avoid exhaustive exercise, but still aim to participate in moderate intensity exercise. Exercise training should be supervised by accredited exercise physiologists to reduce the risk of injury and maximise the benefits of exercise ⁽³⁾. HIV-infected people (and their trainers) should consult regularly with their doctor to discuss their progress and changes in health ⁽⁴⁾.

WHAT TYPE OF EXERCISE IS RECOMMENDED?

The co-morbidities and functional impairments of people with HIV should guide what forms of exercise that they engage in ⁽³⁾. Short-term resistance training improves muscular strength and body composition, but has little effect on quality of life. Aerobic training increases cardiorespiratory fitness and enhances body composition and quality of life ⁽³⁾. Combining resistance and aerobic training appears to provide the broadest benefits for improving functional capacity, body composition and quality of life for people with HIV ⁽³⁾.

WHAT IS A TYPICAL EXERCISE SESSION?

Exercise training typically begins with a light-intensity warm-up (when you can still hold a conversation) lasting 5-10 minutes using large muscle groups. Resistance training normally involves a combination of concentric (shortening) and eccentric (lengthening) muscle contractions performed with weight machines and/or free weights that target different muscle groups. Resistance training is performed completing a certain number of sets and repetitions of different exercises within each set. Aerobic exercise is usually performed by walking at a brisk pace, running or cycling on a stationary bicycle either continuously or intermittently with rest periods. Resistance and aerobic exercise are usually followed by a short light-intensity warm-down lasting around 5 minutes. Because people with HIV often have poor physical conditioning and exercise tolerance, they should start an exercise program at low intensity, and progress gradually to higher intensities.

HOW INTENSE SHOULD THE EXERCISE BE?

Specific guidelines for exercise intensity for people with HIV have not been established. The necessary intensity will vary between people, but as a general rule, exercising at a 'moderate' intensity is required to gain physiological benefits ⁽³⁾. To improve muscular strength, it is recommended to perform 8-12 repetitions at an intensity of 60-90% one repetition maximum in each set. To improve muscular endurance, it is recommended to perform 15-25 repetitions at 50% one repetition maximum in each set. To improve aerobic capacity, exercise should be performed between 11 and 14 on Borg's scale of ratings of perceived exertion (RPE) or between 50-85% of maximum heart rate. If exercise tolerance is poor, then intermittent training can be performed. This involves performing intervals of exercise at >14 on Borg's RPE scale or >75% maximum heart rate for 30 seconds to 3 minutes, with equal periods of low-intensity exercise or rest between the intervals.



REFERENCES AND FURTHER INFORMATION

Exercise is Medicine Australia

www.exerciseismedicine.com.au

Exercise Right www.exerciseright.com.au

Find an AEP www.essa.org.au

1. Lawless D et al Sports Med 19: 235-239, 1995.
2. <https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/hiv-and-aids>
3. Gomes-Neto M et al Clinics (Sao Paulo) 68: 1157-1167, 2013.
4. Dudgeon W et al AIDS Patient Care and STDs 18: 81-98, 2004.
5. Schuelter-Trevisol F et al Current HIV Research 10: 487-497, 2012.