

Combined Exercise in HIV Treatment: Prospects for Non Pharmacological Therapy

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Abstract

The physical exercise is a tool that assists the treatment of various diseases because it improves from aspects of functional capacity (mobility, balance, muscle strength) to the risk factors for several diseases (obesity, Diabetes mellitus, systemic arterial hypertension). Among the many exercise types, the combined physical training has been considered a very interesting method due to responses generated in several populations, for instance, people living with HIV/AIDS.

Keywords: Exercise; HIV/AIDS; Training combined

Several researches using physical exercises cover not only the prevention of diseases but also the improvement of health in general and this may be a fundamental tool to treat many illnesses. Numerous health professionals live what Plato advocated thousands of years ago labeling physical exercise as a need rather than an urgency for the world population [1-3].

A manifold of studies point out that in the HIV virus one of the main affected immunological cells are the CD4+ T-lymphocytes that act like a virus receptor mediating cellular breach. Consequently, the defense system (immunological) becomes compromised raising the vulnerability for opportunistic diseases and mortality by infections and other complications, which could be easily treated [4,5].

In this matter, in 1987 the AZT (zidovudine) was the first drug to be licensed for the HIV treatment; in addition, eight years later it was approved the second class of antiretroviral drug, the protease inhibitors (PI's). Nowadays, the treatment with Highly Active Antiretroviral Therapy (HAART) is the most used and effective in the reduction of viral plasmatic RNA load -HIV-1 for undetectable levels, although it does not represent the cure for HIV; the HAART allowed a slowed progress of the disease, thus prolonging the patients life's expectancy [6,7].

In this sense, HIV turns from a lethal virus to a chronic disease, appearing new clinical conditions negatively associated with the prolonged use of the HAART, once this therapy may be also linked to metabolic side effects, such as insulin resistance, higher cholesterol levels, and lipodystrophy, which are risk factors for cardiovascular diseases. Additionally, the physical exercise brings a great deal of improvement in physical aptitude and functional ability, lowering the risk of cardiovascular diseases and the enhancement of quality of life, without damage to the immunological system [4,8].

Pioneering researches with physical exercises and HIV/AIDS [9-11] have shown that the patients showed improvements in body image, cardiorespiratory capacity, possible reduction in cholesterol and triglycerides levels, psychological parameters and a slight improvement in immune system.

Due to advancement of technology and research in sport science and health, new perspective analysis (for example, molecular biology assay) allowed the better understanding of physiological mechanisms

involved in the response to physical exercise, particularly in diseases [1,2]. Considerable contribution from past studies revealed that aerobic exercise enhanced the lymphocytes profile [11]; on the other hand, the strength training did not provoke the same response in relation to white blood cells, but was able to improve the body composition, the muscle strength and the quality of life of the individuals [12]. It is noted that previous studies have shown that strength training does not weaken the immune system of elderly people with and without HIV, either acutely or chronically [13,14].

Recent studies have analyzed the profile of inflammatory response to physical exercise [1,2] displaying the anti-inflammatory effects. Some studies in the early '00s decided to combine aerobic exercise with strength training and obtained positive results in the CD4+ T-lymphocytes (increase) and viral load (decrease) [13,14]. Moreover, Dirksen (2015) demonstrated that CD4+ T-lymphocytes count is highly sensitive to physical activity [15]. In this sense, a recent investigation [16] observed a higher CD4+ T-lymphocyte count in HIV+ patients after 20 weeks of combined training.

It is known that the chronic exercise practice may reflect in sustainable and significant results. In this sense, Bonato et al. (2012) analyzed HIV+ patients (sedentary; under treatment) subject to walking exercise (67-70% of maximal heart rate) plus strength training (circuit training at 65% of 1 repetition maximum) during 12 weeks, 3 times per week. There was improvements in the 6-minute walking test, LDL cholesterol, BMI, femoral bone mineral density, waist circumference, and LDL levels. These demonstrated that the regular physical exercise is able to control the side effects related to HIV virus infection.

The physical educational professional must consider several factors

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that have influence in a positive training prescription, among them, intensity, frequency, and type of exercise, principles of training in active sports (periodization, biological individuality, load and overload²⁹) and keep up with the progress by using different evaluation types. An important factor to consider is the training intensity, which should be based on maximal strength tests (1 maximal repetition) and/or on cardiorespiratory conditions (VO₂max), which make the training prescription individualized as well as ideal for each patient.

Finally, physical exercise is an exceptional method to assist in the treatment of people living with HIV/AIDS; new researches need to be done for better identify the dose-response of exercise in order to be prescript for this population, being the combined physical training the candidate to induce significative outcomes.

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