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Physical Exercise Improves Health Domains in HIV Patients: 'Lifting a Burden'

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Editorial

Progressive behavioral and neurological dysfunctions are associated with human immunodeficiency virus type 1 (HIV-1) that involve impairments within several areas of neurocognitive expression [1-3], brain integrity [4-7] and motor and everyday behavioral functioning [8,9]. Due to these functional and cerebral dysregulations the availability of possible therapeutics is easily reconciled with existing demand [10]. Regular physical exercise offers protection against adverse inflammatory, neurobehavioral, epigenetic and metabolic outcomes of trauma with the promise of disease prevention [11-14]. Several of the neurological and immune system disorder states arising from neurodevelopmental dysregulations, toxicity exposures, perinatal 'accidents', infections or inflammatory, neuroimmuno-excitotocity 'accidents' may be alleviated through planned schedules of physical exercise and/or activity [15,16], as well as problems arising from the encroachments of immunosenescence [17] with Exercise programs, both clinical, laboratory and health-promotional exercise/activity programs linked to anti-apoptotic, anti-excitotoxic and immune defense-reinforcing influences [18-20] that provide improvements in affective status, neurocognition, quality-of life, motor propensities and physical activity [21]. It has been shown that exercise adherence, involving propensity-to-engage-in and compliance-with, offers a dynamic and fluctuating construct modulated by the episodic nature of HIV and its multi-morbidity aspect among HIV patients [22]. For example, among Nigerian HIV-patients, pulmonary functioning and cardiorespiratory and symptoms of depressiveness were ameliorated [23]. In a longitudinal interventional study of exercise influence upon brain volume (integrity) and cognitive performance of exercise or sedentary HIV-patients [24], it was was found that exercising patients produced better executive, but not motor, function, and greater levels of brain integrity. Furthermore, exercise was linked to improved neurocognitive performance and everyday functioning, as estimated by the instrumental activities of daily living in older HIV+ patients [25-27].

Distal symmetrical poly-neuropathy (DSP), associated with two thirds of HIV cases, involves deficits in mobility, quality-of-life and psychological performance [28-31]. Physical exercise interventions have generally given measureable improvements among those domains [32,33]. Not least of all, aerobic exercise, for the most part, has provided enhanced muscle strength and cardiovascular/metabolic improvements independent of specific exercise regimes [34,35]. Mkandla et al. [36] observed that HIV-patients presenting pain, numbness and muscular weakness due to neuropathy experienced improved quality-of-life following exercise interventions; similar improvements were seen with those HIV patients suffering from chronic inflammation, lack of fitness and metabolic vulnerability [37]. A six-week program of peer-led exercise in AmaXhosa HIV patients led to some pain reduction [38] whereas among HIV-patients living in the deep south of the United States, where physical exertion was observed a huge hindrance rendering most participants sedentary, benefits to physical performance were forthcoming [39,40]. Pedro et al. [41] studied parameters of cardiovascular functioning, including heart rate variability, submaximal values of oxygen uptake, heart rate, peak speed and peak oxygen uptake following sixteen weeks of concurrent aerobic exercise in HIV patients. They found that this exercise schedule was effective in providing improved cardiovascular fitness and higher endurance performance. Similarly, Brown et al. [42] assessed the efficacy of a physiotherapy-led. Group-rehabilitation intervention program involving physical exercise to implement function in HIV patients with regard to referrals, adherence and outcomes; they obtained improvements in the six-minute walk test, strength in triceps and biceps, lattisimus dorsi, shoulder-press, chest-press and leg-press, and the physical, emotional and functional subscales, with higher levels of valid expectancies. Finally, the importance of estimating interventional adherence, compliance and propensity to maintain an 'exercise-habit' cannot be sufficiently stressed upon [43-45].

In conclusion, exercise promotes improvements within a multiplicity of parameters of health domains and may well contribute to a significant increase in the well-being of individuals afflicted with HIV. In this respect, the intervention holds sufficient promise of a high level of quality-of-life together with an amelioration of disease burden.

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