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AEROBIC POWER OF SELECTED PEOPLE LIVING WITHHIV/AIDS IN LAGOS STATE

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ABSTRACT

Aerobic power is an important determinant in thecontinuum between health and disease; and this has implications for management of HIV/AIDS. This study, however, investigated aerobic power status of selected People Living with HIV/AIDS (PLWHA] in Lagos State. 28 PLWHA [11 males and 17 females] participated in the study. The variables measured were age; height, weight, and estimated V02 max that was used to determine the aerobic power of theparticipants. The data collected were analysed using mean, and t-test. Findings revealed that male PLWHA have greater mean VO2 max (46.65 ± 7.06 ml/ kg / $mirt^{-1}$) than their female counterparts (36.65 + 2.76 ml/ kg/ min- ,J; and there is statistical significant difference in their aerobic power levels. Comparison with norms however indicated that both sexes have fairly good aerobic power. It is therefore suggested that the PLWHA sustain and improve on their aerobic power status for wellness and healthy living.

INTRODUCTION

AIDS, an acronym for Acquired ImmuneDeficiency Syndrome, cause by the virus known as the Human Immunodeficiency Virus (HIV) was unknown prior to 1982 (Klemack, 2004). But since then it has grown to become a global epidemic. According to Busari and Dansey (2004), this HIV/AIDS that has been ravaging the whole world like a holocaust for over 20 years now has no respect for age, race, sex or even status in the society. Ojedokun (2004) states that HIV/AIDS is among the top ten killer diseases worldwide. In Nigeria, Busari and Danesy (2004), citing Joint

United Nations Programme for HIV/AIDS [UNAIDS] report that more than 4 million (3.6%) of the 110 million people have been infected with HIV, with estimated prevalence of females higher than that of males.

According to Williams College (2005) and LaPerriere, A., Klismas, N.. Major, P and Perry, A. 1997), research findings reinforce the belief that aerobic power of individual is an important determinant in the continuum between health and disease. This aerobic power is referred to as maximal oxygen uptake (V02 max), or the rate at which oxygen can be utilized during maximal physical work (Howley & Franks, 1992). Google Home Web. (2005) describes it as the body's ability to process oxygen, which is a combination of lung capacity, the size of the capillaries, the pumping action of the heart, and transfer of oxygen from red blood cells to target tissues. Williams College (2005) also establishes a strong statistical association between aerobic power and survival, suggesting a link between impaired oxygen metabolism and disease; therefore a pointer to the fact that aerobic power is a strong factor in prevention and/or management of many diseases.

Real Editorial (2004) observes that there is massive shift in global responses to the AIDS epidemic, with more focus on management, care and treatment of the disease. These include counselling programmes for People Living with HIV/AIDS (PLWHA), administration of Antiretroviral Therapy (ART) and diet considerations. All of these help the PLWHA to live longer and better lives. These, (at least for now) appear to be more of reality than absolute efforts just on cure and prevention alone.

In the management of HIV/AIDS however, Highly Active Antiretroviral Therapy (HAART) has been reported to have dramatically altered the survival rate of PLWHA positively (Real Editorial, 2004; Klemack, 2004). Recent studies revealed that with the advent of HAART, new problems have emerged. Aside from complicated dosing regimens, HAART is reported to bring about metabolic changes, which result in abnormal fat distribution as well as cholesterol and glucose abnormalities (Klemack, 2004; Steinbery, 2004). It is therefore obvious that maintaining good aerobic power level is strongly required in the management of HIV/AIDS. This is not only

for its association with general wellness, but also its specific link with burning of body fats. This study was therefore conceived to investigate aerobic power levels of selected People Living with HIV/AIDS (PLWHA) in Lagos State. The study sought answer to the following research questions:

1. What is the aerobic power level of PLWHA in Lagos State?
2. Is there any difference in the aerobic power levels of male and female PLWHA in Lagos State?

METHODS

Participants

Twenty- eight (28) People Living with HIV/AIDS(PLWHA) who were attending clinic at the Voluntary Counselling and Testing [VCT] Centre (Hematology Clinic) in a General Hospital, were participants in this study. They were selected using purposive sampling technique. Seventeen (17) of them were females, while eleven (11) were males. The mean-age of the female participants were 31.65+ 5.16 within the range of 25 - 43 years and for male was 37.0 ± 4.52 within the range of 32 - 43 years. The females have the mean-stature of 162.82 ± 6.58 within the range of 152 - 175cm, and it was 169.17 + 8.84 within the range of 162 - 185cm for the males. And for the weight, the mean for the female participants was 63.36 + . 14.33 within the range of 47 - 103kg, while it was 61.25 -F. 5.39 within the range of 54.4 - 68.5kg for the male participants.

Procedure for Measurement

All the measurements in this study were carriedout at the VCT Centre (Haematology Clinic) General Hospital. Lagos between the hours of 8:00 and 10:00am of each day within intervals of two weeks. The variables measured on each participant were age, height, weight and estimated

VO2 max. Ages to the nearest birthday were asked from the participants, and the standard measurements procedure as described by International Society for the Advancement of Kinanthropometry (ISAK, 2001) were followed to measured height and weight. 3-minute step test as described by Fahey, Insel and Roth (2001) was used to determine estimated VO2 max of the participants.

Data Analysis

Mean and scattergram were used to describethe data collected in this study. Inference was, however made using Student's t-test statistical tool at 0.05 level of significance.

Results

Table 1: Mean, Standard Deviation and Range on age, height, weight and Recovery Pulse Rate [RPR) of PLWHA

Male					Female			
Variable	Age	Height	Weight	RPR	Age	Height	Weight	RPR
X	37.0	169.17	61.25	154.0	31.65	162.82	63.36	157.18
SD	4.52	8.84	5.39	16.81	5.16	6.58	14.33	14.32
Range	32–43	162–185	54.5–68.5	128–176	25–43	152.175	47.103	124.176

Results presented in table 1 shows that the male PLWHA have a greater mean age (37.0 + 4.52 years) and mean height (169.17 + 8.84cm) than their female counterparts. The females however have greater mean weight (63.36 + 14.33kg) and also recorded higher Recovery Pulse Rate (RPR

157.18 + 14.32) than the males. Figure 1 below shows the scattergram on recovery pulse rate of PLWHA by sex.

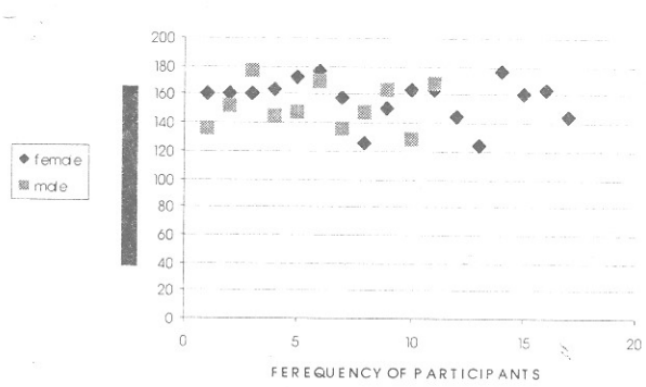

Figure 1: Scattergram on Recovery Pulse Rates of PLWHA

The female participants in the above scartergram recorded higher Recovery Pulse Rate than their male counterparts in this study. The high Recovery Pulse Rate is an indication of lower aerobic power level.

Table 2: Mean, Standard deviation, range and t-test results on aerobic power (V02 Max - ml/kg/min $^{-1}$) of PLWHA_

Sex	No	X	SD	Range	Df	t-cal	t-cri
Male	11	46.65	7.06	37.41–57.57	26	*4.48	2.06
Female	17	36.65	2.76	33.30–42.91			

* = Significant at 0.05

Result presented in table 2 shows that male PLWHA in this study have greater mean VO2 max (46.65 + 7.06 within the range of 37.41 - 57.57 ml/kg/min^{-1}) than their female counterparts (36.65 ± 2.76 within the range of 33.30 -- 42.91 ml/kg/min^{-1}) t-test analysis of the data shows that the calculated value (4.48) was greater than the critical value (2.06) at 0.05 level of significance. This result indicates significant difference in the aerobic power of male and female PLWHA that participated in this study.

DISCUSSION

The results of this study indicate statistical

significant difference between the male and female PLWHA in this study. The mean values show that the males have greater aerobic power than their female counterparts (see table two). Judging byexisting standards (Adreacci, 2003; Fahey, Insel & Roth. 2001; Howley & Franks, 1992) one could infer (despite the statistical variation) that both male and female PLWHA who recorded 46.65 + 7.06 ml/kg/min^{-1} and 36.65 + 2.76 ml/kg/min^{-1} respectively, have fairly good aerobic power levels. Andreacci (2005) scored a normal population of males and females of 30 years of age who have 42 47 ml/kg/min^{-1} and 35 - 39 ml/kg/min^{-1} as having average aerobic power. The norms from the Cooper Institute for Aerobic Research also reported similar results (Fahey, Insel & Roth, 2001). This finding should not be a surprise, oral interview of the participants revealed that some of them engaged in exercise, probably as part of their management programmes. The result of our study therefore could have been influenced by performances of these participants who engaged in regular exercises.

Although, the PLWHA recorded fairly good aerobic power in this study, scattergram in figure 1 shows that some of them recorded very high recovery pulse rate, which is an indication of poor aerobic power. Studies, however, have shown that PLWHA need to maintain good aerobic power levels (Klemack, 2004; Steinberg, 2004; Leach, 2003). While Klemack (2004) was of strong opinion that aerobic exercises provide many health benefits to PLWHA, Steinberg (2004) insisted on aerobic power training for PLWHA, as this is not only great for the immune system,

but also decreases the risk for developing Coronary Heart Diseases (CHD), and helps with weight management; though such exercise must be applied with caution especially for PLWHA experiencing wasting or unintentional weight loss.

According to Klemack (2004), health care professionals previously recommended that PLWHA refrain from exercise due to concerns of symptom exacerbation or increased risk of infection, but current research findings imply that PLWHA can reap some of the same benefits of exercise as the general population; especially from exercise programmes of aerobic power and strength training.

Similarly, Leach (2003) was of the opinion that moderate aerobic exercise prescribed in accordance with the recommendations of the American College of Sports Medicine (ACSM) should be recommended for PLWHA. This is required not just because of its effect on the body's immune system. but also for additional improvements, reflected in the aerobic power. minute ventilation, oxygen pulse rate, pressure product, as well as lower heart rates at rest and during sub maximal training workloads.

Leach (2003) in addition, opined that subjectively, moderate aerobic exercise for PLWHA lowers Rating of Perceived Exertion (RPE) for a given exercise load, and increases willingness to engage in vigorous physical activity, which is, of course, of a greater benefit.

CONCLUSION AND RECOMMENDATION

Based on the findings of this study, it isconcluded that selected people living with HIV/AIDS (PLHWA) in Lagos State have fairly good aerobic power status. This implies that there is need for improvement to maintain considerably good levels of fitness and wellness. It is therefore recommended that regular and moderate aerobic exercise as recommended by ACSM (Leach, 2003), that is between 50 and 70 percent of maximum heart rate three times per week, should be included in the management programmes of PLWHA. Counsellors, health personnel and others involved in HIV/AIDS management programmes should encourage PLWHA to be faithful to this recommendation.

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