



Aerobic exercise: effects on parameters related to fatigue, dyspnea, weight and body composition in HIV-infected adults

CITATION

Smith BA, Neidig JL, Nickel JT et al. Aerobic exercise: effects on parameters related to fatigue, dyspnea, weight and body composition in HIV-infected adults. *AIDS* 2001;15:693-701

RESEARCH QUESTION

Does aerobic exercise have an effect on physiological fatigue, dyspnea, weight and body composition in HIV-infected adults?

THE STUDY DESIGN

Randomized, wait-listed, controlled trial

STUDY SETTING

Infectious Disease Clinic and an associated AIDS Clinical Trials Unit at a large mid-western, academic medical center as well as from local service and social groups.

Ethics approval obtained.

Subjects signed the approved consent form.

PARTICIPANTS

Included: HIV-1 infected adults; stable antiretroviral therapy

Excluded: No intake of anabolic steroids; growth hormone or appetite stimulants; could not have had an AIDS-defining illness, fever, active wasting or weight <85% of their ideal body weight; pregnant women

INTERVENTIONS

Intervention Group: Ongoing aerobic exercise-training program 3 times a week for 12 weeks

Control: Subjects were contacted every other week by telephone or during a clinic visit. At the end of the first 12 weeks of participation, subjects were enrolled in the exercise protocol and exercised to week 24.

OUTCOMES

Time on treadmill; Change in RPE and FEV₁; Change in weight and body composition; Change in maximum oxygen use; Change in CD4+ cell count; Change in CD4+ percentage; Change in HIV-1 RNA copy number

RISK OF BIAS (Risk Scale: Low – Moderate – High)

SELECTION BIAS: Moderate

Subjects were randomly assigned. No details of how allocation sequence was generated. Allocation concealment not reported. The two groups were similar at baseline on the variables of age, weight, BMI, time since HIV-1 diagnosis, total number of symptoms reported, CD4+ cell count and percentage.

PERFORMANCE BIAS: Moderate

(I.e what else happened that may have affected the result?)

Participants and provider were unblind.

DETECTION BIAS: Moderate

Participants and provider were unblind. All members of the GXT team testing team, except the principal investigator, were blinded to the subject's group assignment. Subjects completed questionnaires, had body weight, skinfold thickness and circumferences measured, had blood drawn and had to complete a 4-day food-use diary. FEV₁ was measured during a routine pulmonary function test. Height and weight were measured on a standard balance beam scale with a rigid vertical height rod.

ATTRITION BIAS: Moderate

	Intervention	Control
Started	30	30
Completed trial	19	30
Loss to follow-up	11 (36.7%)	0

No intention to treat analyses was carried out.

STUDY FINDINGS

Outcome	Treatment	Mean (sd)	WMD
Time on Treadmill	I	10.2 (1.7)	1.6
	C	8.6 (1.4)	0.64;2.56
RPE	I	17.1 (2.8)	0.7
	C	16.4 (3.4)	-1.12;2.52
FEV ₁	I	4.1 (0.8)	0.5
	C	3.6 (1.1)	-0.05;1.05
Weight	I	82.4 (12.9)	-2.7
	C	85.1 (12.4)	-10.18;4.78
Body mass Index	I	26.0 (4.4)	-1.7
	C	27.7 (4.0)	-4.2;0.8
Triceps skinfold	I	9.1 (8.0)	-8.5
	C	17.6 (9.1)	-13.46;-3.54
Central Skinfolds	I	49.2 (24.7)	-25.7
	C	74.9 (29.1)	-41.27;-10.13
Peripheral Skinfolds	I	29.8 (19.0)	-24.3
	C	54.1 (33.2)	-39.79;-8.81
Waist at umbilicus	I	89.7 (10.9)	-4.8
	C	94.5 (10.3)	-11.23;1.63
Maximal Hips	I	93.5 (8.8)	-3.8
	C	97.3 (10.7)	-9.56;1.96
Waist-to-hip Ratio	I	0.96 (0.06)	-0.01
	C	0.97 (0.07)	-0.05;0.03
VO ₂ max	I	37.5 (6.1)	5.5
	C	32.0 (6.9)	1.73;9.27
CD4+ cell count	I	339.1 (127)	-50.4
	C	389.5 (118.1)	-93.07;-7.73
CD4+ %	I	21.1 (8.8)	-1.4
	C	22.5 (7.5)	-6.27;3.47
HIV-1 RNA	I	3.9 (1.0)	0.3
	C	3.6 (0.8)	-0.33;0.93

ADVERSE EVENTS

No adverse events were reported.

COMMENTS

Depending on how you look at the outcomes, aerobic exercise has a significant effect on some of them. When change in mean scores per group (pre and post) is compared, aerobic exercise decreases physiological fatigue, weight and body composition in HIV-infected adults but has no effect on dyspnea. When weighted mean difference (post only) is compared, aerobic exercise has a significant effect on physiological fatigue and triceps, central and peripheral skinfolds and VO₂ max as well as CD4+ cell count.

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