



Association of Regional Body Composition and Physical Function using the Short Physical Performance Battery among Peruvian Women with HIV

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BACKGROUND

- The musculoskeletal system (MSK) is significantly affected by HIV and its treatment. Changes in body composition can reflect important alterations in bone and MSK health, particularly among population at risk for developing fat redistribution syndromes, like women with HIV
- Although more than half of the HIV-infected population worldwide are women, there are limited data about characteristics of women aging with HIV in Latin America and the Caribbean (LAC)

OBJECTIVE

- To explore the relationship of regional body composition and physical function among Peruvian women aging with HIV

METHODOLOGY

- Hospital-based cross-sectional study (October 2019 – March 2020)
- We enrolled HIV-infected and uninfected women ≥ 40 years of age receiving care at a large HIV clinic at Arzobispo Loayza National Hospital in Lima, Peru
- Dual X-ray absorptiometry was used to measure trunk and limb lean mass (LM) and fat mass (FM)
- Physical performance was assessed with the well-established Short Physical Performance Battery (SPPB) and physical strength with the grip strength test (GST) using a Jamar hand hydraulic dynamometer
- We used linear regression to model associations between HIV status, body composition and physical tests scores

RESULTS

- 104 HIV-infected and 212 uninfected women were enrolled with a mean age of 52.4 ± 8.2 and 56.4 ± 8.8 years ($p < 0.001$) and BMI of 26.4 ± 5.1 and 27.6 ± 4.1 kg/m² ($p = 0.03$), respectively
- Among the HIV group, the mean years since HIV diagnosis was 11.8 ± 6 and everyone was on antiretroviral treatment (9.9 ± 5.3 years)
- Overall mean SPPB score was 9.9 vs 10.8 between HIV-infected and uninfected women. ($p < 0.001$)
- Mean grip strength was 19.9 ± 5.9 vs 19.8 ± 5.4 kg ($p = 0.83$) between women with and without HIV
- 20.3% of women met criteria for the sarcopenia syndrome, with the sarcopenia stage being the most common overall (14.3%)
- In multivariate models adjusted by age and HIV status, increased trunk FM was independently associated with decreased SPPB score ($p < 0.001$), increased arm LM was independently associated with increased GST ($p < 0.001$) and increased arm %fat was independently associated with decreased GST ($p < 0.001$)

CONCLUSIONS

- In this study, trunk FM and arm LM were independent predictors for the physical performance and function tests described, and HIV status was independently associated with SPPB score
- Larger prospective studies are needed among HIV-infected populations in LAC to help identify individuals at high risk for declines in physical function, and to inform prevention guidelines

Characteristics	HIV-positive women (N=104)	HIV-negative women (N=212)	P-value
Physical function and strength tests			
SPPB			
Overall score, mean (SD)	9.99 (1.4)	10.81 (1.12)	<0.001
score ≤ 8 N(%)	17 (16.35)	10 (4.72)	0.099
score > 8 N(%)	87 (83.65)	202 (95.28)	<0.001
Balance test, mean (SD)	3.68 (0.51)	3.86 (0.36)	<0.001
Gait test, mean (SD)	3.56 (0.55)	3.71 (0.48)	0.01
Chair stand test, mean (SD)	2.75 (0.71)	3.14 (0.77)	<0.001
Grip Strength			
Score (kg), mean (SD)	19.93 (5.91)	19.78 (5.44)	0.825
Stages and components of sarcopenia			
Presarcopenia, n (%)	7 (6.7)	12 (5.7)	0.93
ASMI (kg/m ²), mean (SD)	5.32 (0.3)	5.24 (0.4)	0.709
Grip strength (kg), mean (SD)	23.57 (1.9)	25.5 (3.2)	0.168
SPPB, mean (SD)	10.71 (0.8)	11.66 (0.7)	0.009
Sarcopenia, n (%)	16 (15.4)	35 (16.5)	0.921
ASMI (kg/m ²), mean (SD)	5.18 (0.4)	5.21 (0.3)	0.793
Grip strength (kg), mean (SD)	15.56 (3.5)	16.46 (3.9)	0.436
SPPB, mean (SD)	10.13 (0.9)	10.89 (0.9)	0.008
Severe sarcopenia, n (%)	4 (3.8)	2 (0.9)	0.84
ASMI (kg/m ²), mean (SD)	4.59 (0.7)	5.06 (0.1)	0.399
Grip strength (kg), mean (SD)	16.75 (2.5)	13 (4.2)	0.226
SPPB, mean (SD)	7.5 (1)	7.5 (0.7)	1

ASMI, appendicular skeletal mass index; **Presarcopenia***: ASMI ≤ 5.67 kg/m² and Grip Strength > 20 kg and SPPB overall score > 8 ; **Sarcopenia***: ASMI ≤ 5.67 kg/m² and (Grip Strength ≤ 20 kg or SPPB overall score ≤ 8); **Severe sarcopenia***: ASMI ≤ 5.67 kg/m² and Grip Strength ≤ 20 kg and SPPB overall score ≤ 8 ; *Defined by the Sarcopenia Working Group (EWGSOP) guidelines

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