PREVALENCE OF PHYSICAL FUNCTION IMPAIRMENT AND FRAILTY IN MIDDLE-AGED PWH

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BACKGROUND

- People living with HIV (PWH) are at risk for accelerated development of physical function impairment and frailty; both of which are associated with increased risk of falls, hospitalizations and mortality.
- We evaluated the prevalence of physical function impairment and frailty, and their associations with demographics, clinical characteristics and risk factors.

METHODS

- The REPRIEVE trial enrolled 7770 participants: 40-75 years, on stable antiretroviral therapy (ART) with CD4+ count >100 cells/mm^3, low-to-moderate cardiovascular disease risk, excluding diabetics if LDL ≥70 mg/dL.
- 266 participants concurrently enrolled into the ancillary study, A5361s (PREPARE), from 2017 to 2018, at 29 US sites were evaluated at enrollment.

Evaluations and Outcome Measures

1) Physical Function Impairment: Short Physical Performance Battery (SPPB) score ≤10
   - Repeated chair stands (5x)
   - Balance (side-by-side, semi-tandem, tandem stand for 10 seconds)
   - Walk (2 x 4-meter walk)
2) Frailty: presence of three or more components of Fried Frailty Phenotype (weight loss, exhaustion, low activity, slow gait, weak grip).

Statistical Analysis

- Spearman correlation for association between SPPB score and frailty phenotype*
- Two-sided 95% Wilson CI for prevalence**
- Logistic regression for associations with covariates
- Inference based on a nominal 0.05 significance level

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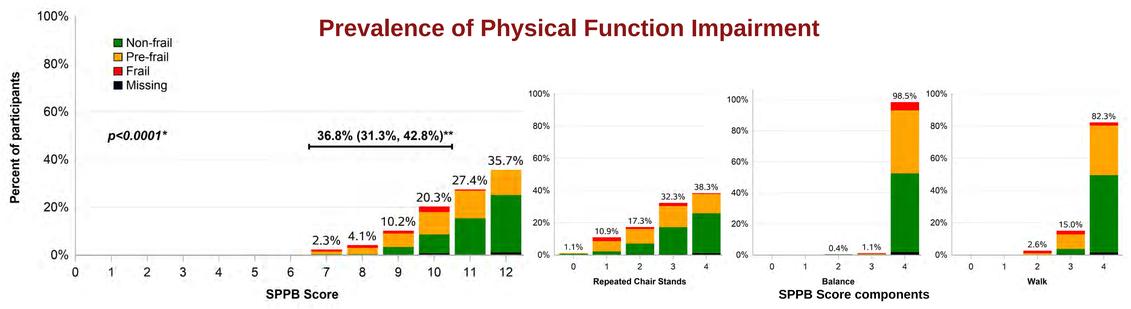
Physical function impairment and pre-frailty were present in nearly half of the participants.

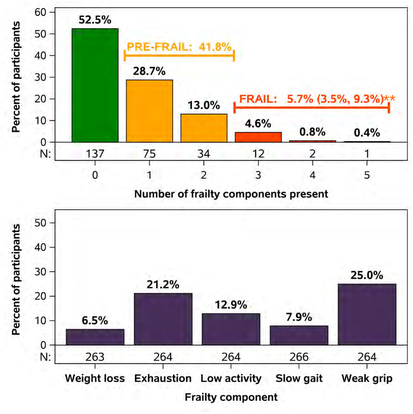
Impairments were present mostly in power and strength.
(Likely reflecting poor skeletal muscle quality)

Some associated factors are modifiable.
(BMI, physical activity)

Prevalence of Physical Function Impairment

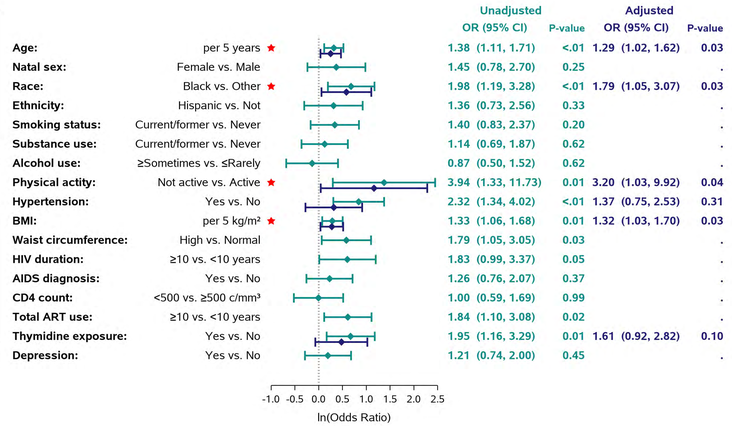


Prevalence of Frailty



Top panel: Percent of participants by number of frailty components present with bars colored by frailty phenotype: frail (≥3 components), pre-frail (1-2 components), non-frail (0 components).

Associations with Physical Function Impairment



Odds ratios (OR) and confidence intervals (CI) are shown in log scale for visual purposes. Each unadjusted model includes a single covariate. The adjusted model includes covariates with p<0.05 in the unadjusted models. Star indicates p<0.05 in the adjusted model.

RESULTS

Baseline Characteristics		N=266
Age (years)		51 (46, 55)
Natal male		216 (81%)
Black race		121 (45%)
Hispanic or Latino		49 (18%)
Physically not active (REAP)[A]		237 (89%)
History of hypertension		74 (28%)
BMI (kg/m^2)	25 to <30	101 (38%)
	≥30	80 (30%)
Waist circumference high[B]		85 (33%)
CD4 count (cells/mm^3)		610 (437, 840)
HIV-1 RNA <50 copies/mL		235 (93%)
Total ART use (years)		11 (6, 16)
Thymidine exposure (ever)		91 (34%)
Unable to perform ≥1 IADL (DASI)[C]		85 (32%)

Frequency (%) for categorical, median with 1st and 3rd quartiles for continuous measures. Missing data: Physical Activity (n=1), Waist circumference (n=10), HIV-1 RNA (n=12). [A]Rapid Eating Assessment for Patients (REAP); [B]Waist circumference >102 cm in men, >88 cm in women classified as high; [C]Instrumental Activities of Daily Living (IADL) by Duke Activity Status Index (DASI).

CONCLUSIONS

- In this relatively young population of PWH, while overt frailty was uncommon, physical function impairment and pre-frailty were present in nearly half.
- Greater BMI and physical inactivity are important modifiable factors that may prevent further decline in physical function with aging.
- Physical function impairment appeared mostly in power (the ability to rise from a chair) or strength (grip), important manifestations of skeletal muscle function.
- Future analyses will examine associations between physical function and muscle quality.

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