

**Validation of the Pittsburgh Performance Fatigability Index in the Study of Muscle,
Mobility and Aging (SOMMA)**

AUTHORS: Yujia (Susanna) Qiao¹, PhD, ScM; Jaroslaw Harezlak², PhD; Peggy M. Cawthon^{3,4}, PhD; Steven R. Cummings, PhD³; Daniel E. Forman⁵, MD; Bret H. Goodpaster⁶, PhD; Marquis Hawkins¹, PhD; Kyle D. Moored⁷, PhD; Barbara J. Nicklas⁸, PhD; Frederico G.S. Toledo⁹, MD; Pamela E. Toto¹⁰, PhD; Adam J. Santanasto¹, PhD, MPH; Elsa S. Strotmeyer¹, PhD, MPH; Anne B. Newman¹, MD, MPH; Nancy W. Glynn¹, PhD

Table S1. Discriminant power of performance fatigability severity based on identified PPFi cut-points against gait speed, SPPB, chair stand speed, leg peak power, VO₂peak and perceived fatigability in the Study of Muscle, Mobility and Aging (SOMMA) (N=805¹)

Physical performance and perceived fatigability measures	Performance fatigability severity strata					
	No performance fatigability (PPFI=0)		Mild performance fatigability (0<PPFI<3.5 for women; 0<PPFI<5.4 for men)		Moderate-to-severe performance fatigability (PPFI ≥3.5 for women; PPFi ≥5.4 for men)	
	<i>Standardized Beta (SE)</i>	Adjusted mean ²	<i>Standardized Beta (SE)</i>	Adjusted mean ²	<i>Standardized Beta (SE)</i>	Adjusted mean ²
Gait speed ³ , m/s	Ref	1.17	-1.34 (0.05)	0.93	-1.71 (0.07)	0.87
SPPB score, 0-12	Ref	10.39	-0.62 (0.07)	9.31	-0.84 (0.11)	8.91
Chair stand speed, stands/s	Ref	0.43	-0.70 (0.07)	0.35	-0.81 (0.11)	0.34
Leg peak power ³ , watts/kg	Ref	5.17	-0.53 (0.06)	4.27	-0.60 (0.09)	4.14
VO ₂ peak ⁴ , mL/kg/min	Ref	21.89	-0.69 (0.06)	17.53	-0.80 (0.10)	17.26

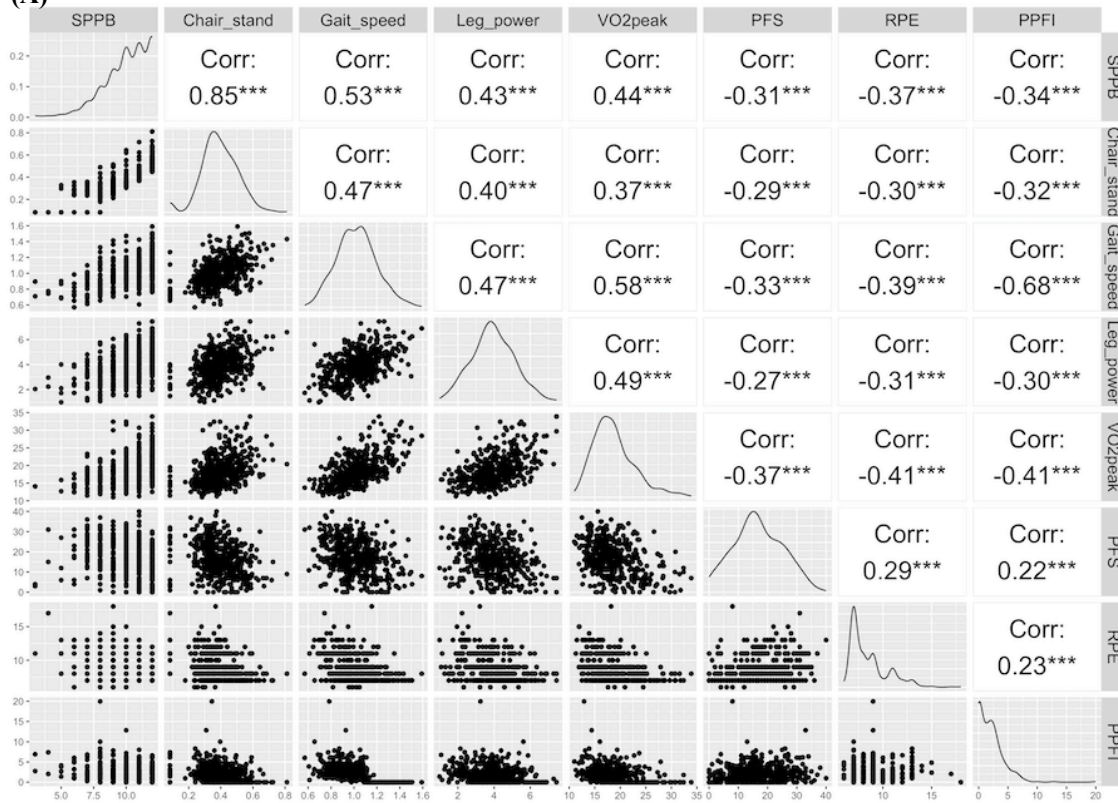
Abbreviations: PPFi = Pittsburgh Performance Fatigability Index; SPPB = Short Physical Performance Battery; PFS = Pittsburgh Fatigability Scale; RPE = Rating of Perceived Exertion

¹ There were n=1 participant missing SPPB score and chair stand speed, n=34 participants missing leg peak power, n=51 missing VO₂peak

² Adjusted means were calculated using generalized linear regressions after adjusting for study site, age, sex, race, height, weight (except for the models with leg peak power and VO₂peak), and smoking status

³ Obtained from usual-paced 400m walk

(A)



(B)

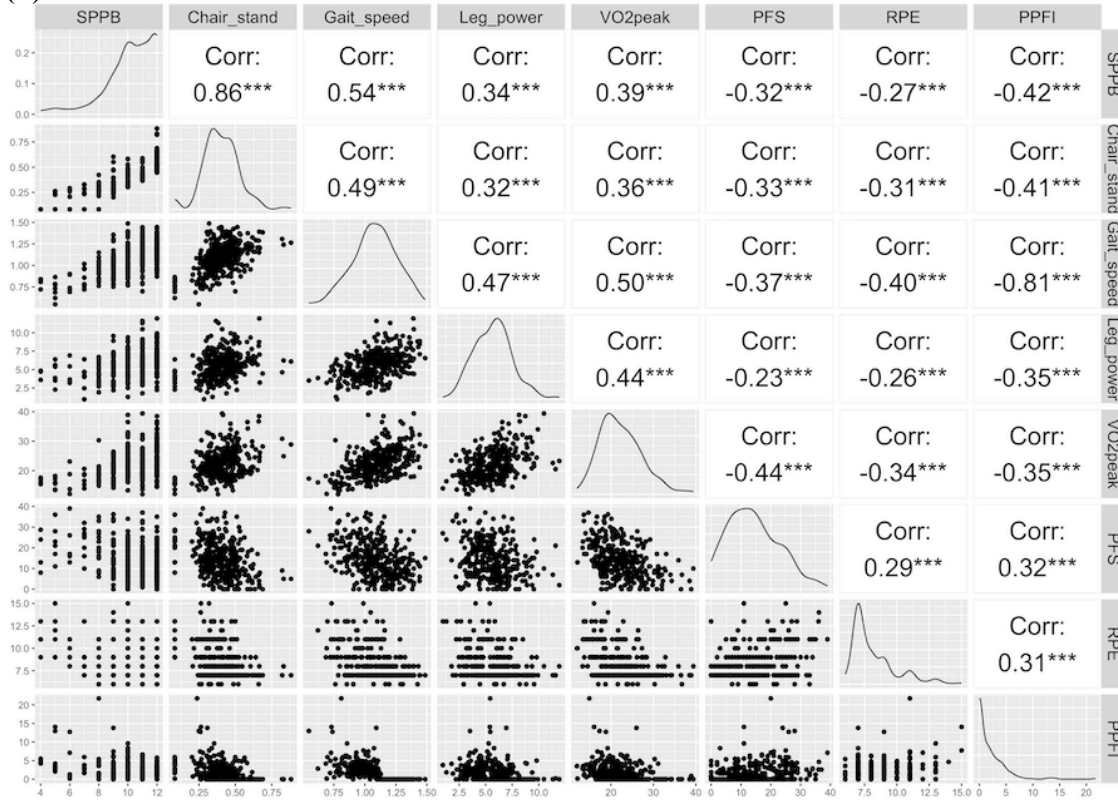


Figure S1. Spearman correlations between PFFI scores and SPPB, chair stand speed, 400m gait speed, leg peak power, VO₂peak, and perceived fatigability measures stratified by sex¹ in the Study of Muscle, Mobility and Aging (SOMMA): (A) n=469 for women, (B) n=336 for men
*** P<0.001, ** P<0.01, *P<0.05

Abbreviations: SPPB = Short Physical Performance Battery; PFS = Pittsburgh Fatigability Scale; RPE = Borg Rating of Perceived Exertion; PFFI = Pittsburgh Performance Fatigability Index

¹ There were n=1 participant missing SPPB score and chair stand speed, n=34 participants missing leg peak power, n=51 missing VO₂peak, n=6 missing PFS Physical scores, n=34 missing RPE fatigability in the total sample

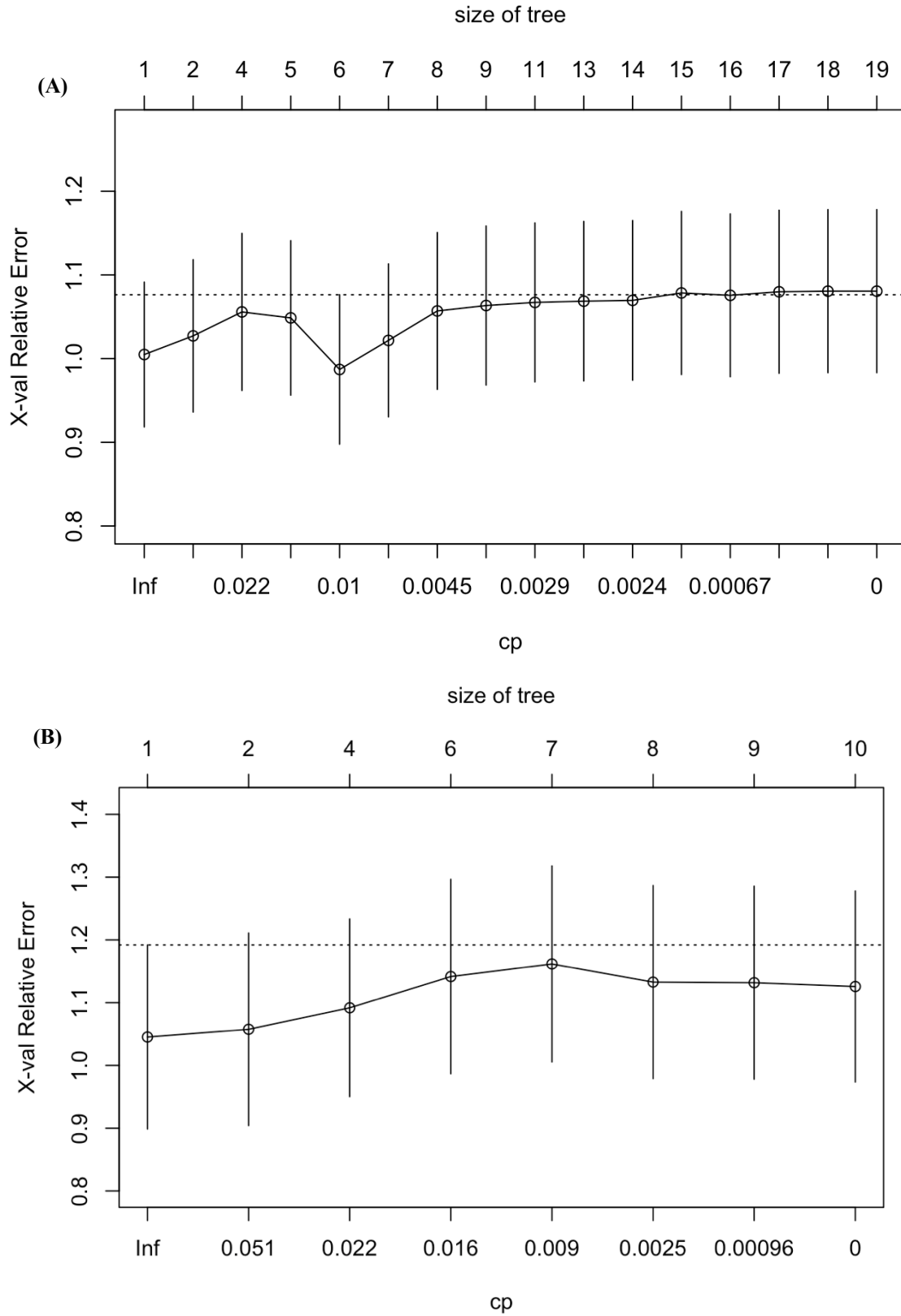


Figure S2. Cross-validation results from CART to generate sex-specific the Pittsburgh Performance Fatigability Index (PPFI) cutpoints in the Study of Muscle, Mobility and Aging

(SOMMA): (A) n=469 for women, (B) n=336 for men

Abbreviations: CART = the classification and regression tree, cp = complexity