

## Supplemental Online Content

Pandey A, Kitzman DW, Nelson MB, et al. Frailty and effects of a multidomain physical rehabilitation intervention among older patients hospitalized for acute heart failure: a secondary analysis of a randomized clinical trial. *JAMA Cardiol*. Published online January 4, 2023. doi:10.1001/jamacardio.2022.4903

**eTable 1.** Baseline Characteristics of Study Participants Across the Treatment vs Attention Control Arms Across the Prefrail vs Frail Strata

**eTable 2.** Association of Decrease in Evidence of Frailty, Assessed Per 1-Unit Decrease in Modified Fried Frailty Criteria, From Baseline to 3-Month Follow-up With Risk of Adverse Clinical Events at 6-Month Follow-up

**eFigure 1.** CONSORT Diagram for the Primary Trial

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This supplementary material has been provided by the authors to give readers additional information about their work.

**eTable 1.** Baseline Characteristics of Study Participants Across the Treatment vs Attention Control Arms Across the Prefrail vs Frail Strata

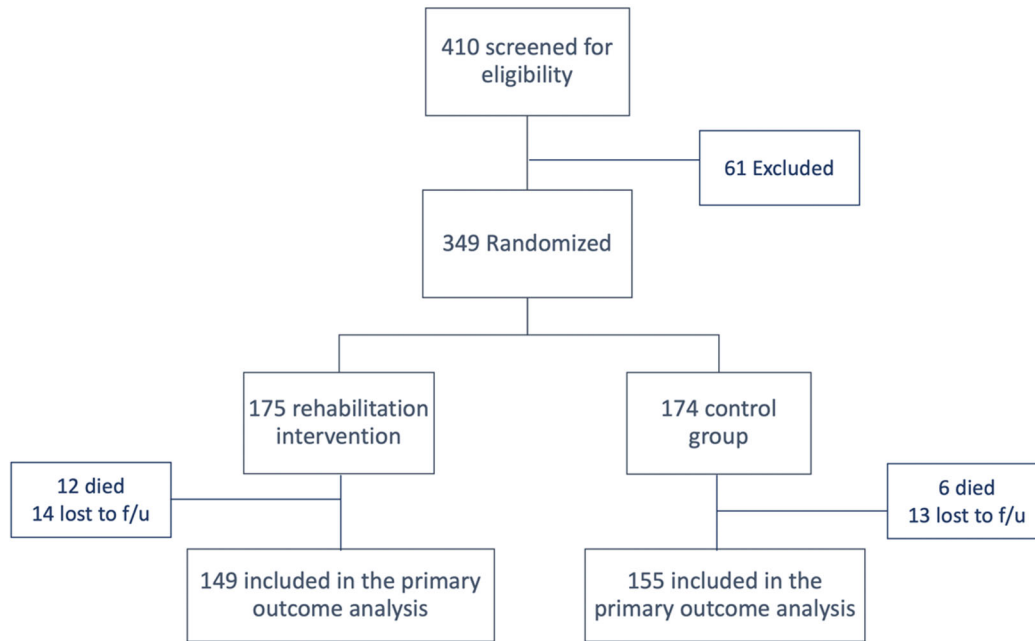
Characteristics	Pre-Frail (N=145)	Frail (N=192)	p-value
Age	71.7 ± 7.6	73.5 ± 8.3	0.041
Female	72 (50%)	109 (57%)	0.19
Non-white	78 (54%)	89 (46%)	0.18
Body mass index (kg/m <sup>2</sup> )	32.5 ± 7.4	33.4 ± 9.4	0.33
Ejection fraction ≥45%	72 (50%)	109 (57%)	0.19
NYHA Class			
II	28 (19%)	33 (18%)	0.67
III	81 (56%)	102 (53%)	
IV	36 (25%)	56 (29%)	
BNP, pg/mL, median (IQR)	595 (302-1033)	625 (300-1297)	0.44
NT-proBNP, pg/mL, median (IQR)	3387 (1622-5254)	3131 (1452-8351)	0.56
Length of stay, median (IQR)	4 (3-6)	5 (3-7)	0.13
<b>Co-morbidities</b>			
Total Comorbidities	4.9 ± 1.7	5.5 ± 2.1	0.003
Hypertension	134 (92%)	175 (91%)	0.68
Myocardial infarction	26 (18%)	34 (18%)	0.96
Coronary revascularization	40 (28%)	59 (31%)	0.53
Atrial fibrillation	64 (44%)	105 (55%)	0.06
Diabetes mellitus	76 (52%)	101 (53%)	0.97
Hyperlipidemia	98 (68%)	125 (65%)	0.63
Chronic obstructive pulmonary disease	30 (21%)	65 (34%)	0.008
Chronic kidney disease	39 (27%)	75 (39%)	0.019
Stroke	23 (16%)	28 (15%)	0.75
Peripheral vascular disease	13 (9%)	27 (14%)	0.15
Cancer	24 (17%)	48 (25%)	0.06
<b>Geriatric Conditions</b>			
Urinary incontinence*	11 (9%)	27 (17%)	0.06
Fall in previous 3 months†	18 (15%)	25 (16%)	0.87
MoCA Score <26	108 (75%)	158 (82%)	0.08
GDS-15 Score ≥5	50 (34%)	100 (52%)	0.001
<b>Functional Status/QOL measures at baseline</b>			
SPPB Score	7.0±2.6	5.1±2.4	<0.001
Balance Score	2.9±1.3	2.4±1.3	<0.001
4-meter Walk Score	2.7±1.0	1.9±0.8	<0.001
Chair Rise Score	1.4±1.2	0.9±1.0	<0.001
6 Minute Walk Distance (m)	225±105	158±89	<0.001
KCCQ Overall Score	46±21	35±18	<0.001
EuroQol VAS	63±19	54±23	<0.001
Data presented as mean ± SD or median (25 <sup>th</sup> and 75 <sup>th</sup> percentile) for continuous variable and n (%) for categorical variables. Abbreviations: NT-ProBNP- N-terminal brain natriuretic peptide; BNP- Brain natriuretic peptide; SPPB- short physical performance battery; KCCQ- Kansas City cardiomyopathy questionnaire, MoCA Score- Montreal cognitive assessment score; GDS-15- Geriatric depression scale-1			

**eTable 2.** Association of Decrease in Evidence of Frailty, Assessed Per 1-Unit Decrease in Modified Fried Frailty Criteria, From Baseline to 3-Month Follow-up With Risk of Adverse Clinical Events at 6-Month Follow-up

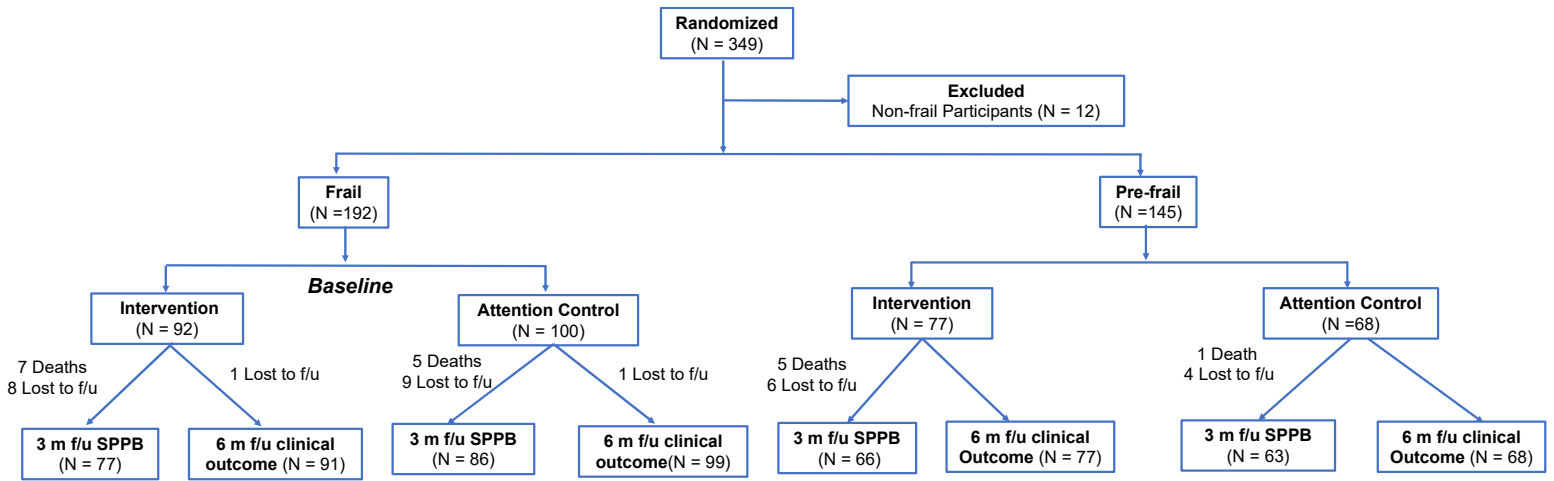
Outcomes	Rehabilitation Intervention arm		Attention Control Arm	
	Parameter Estimate (95% CI)	p-value	Parameter Estimate (95% CI)	p-value
All-cause rehospitalizations	0.65 (0.52-0.80)	<0.001	0.66 (0.52-0.83),	p<0.001
Combined all-cause rehospitalizations and death	0.62 (0.50-0.76)	<0.001	0.64 (0.51-0.80)	p<0.001
<p>Models adjusted for age, sex, clinical site, EF category. Parameter estimates were for 1 unit decrease in change in modified Fried frailty index score from baseline 95%CI. Separate models were constructed for each outcome.</p> <p>Abbreviations: SPPB- short physical performance battery; KCCQ- Kansas City cardiomyopathy questionnaire, MoCA Score- Montreal cognitive assessment score; GDS-15- Geriatric depression scale-15</p>				

**eFigure 1.** CONSORT Diagram for the Primary Trial

(Adapted from the primary trial publication, Kitzman et al NEJM 2021)

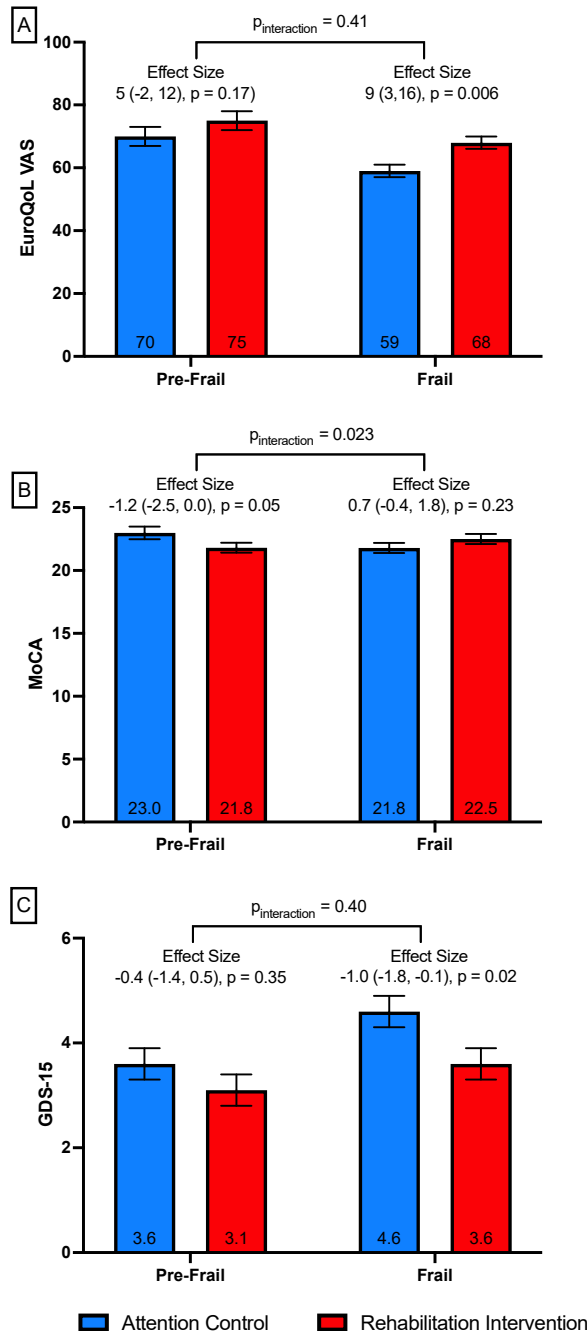


**eFigure 2.** CONSORT diagram for the present analysis



**eFigure 3.** Adjusted Measures of EuroQol Score, MoCA Score, and Global Depression Scale Score at 3-Month Follow-up

Adjusted measures of EuroQol score (range from 0-100 with a higher score indicating better QOL), MoCA score (range from 0-30 with a higher score indicating better cognition), and Global depression scale (GDS-15, range from 0-15 with a higher score indicating worse depressive symptoms) score at 3 months follow up among intervention and attention control group participants stratified by frail (vs. prefrail) status at baseline. Follow-up data are presented as LS means  $\pm$  SE adjusted for baseline value, clinical site, age, sex, and EF category. Effect size represents the difference in LS means between the intervention and attention control groups. P-interaction refers to treatment arm\*frailty status (prefrail vs. frail) interaction for the outcome of interest.



**eFigure 4.** Proportion of Participants Meeting Key Components of Fried Criteria at Baseline and 3-Month Follow-up Among Rehabilitation Intervention and Attention Control Arms

