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Monitoring Exercise Compliance to a Home-Based Exercise Program in Advanced Heart Failure Patients

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Measuring compliance to exercise is important to clinicians and researchers since inadequate compliance can adversely impact the effectiveness of an intervention. Hence, assessment strategies for compliance, like assessment strategies for other outcomes, must have demonstrated validity and reliability if they are to be employed with confidence. **PURPOSE:** We conducted this study to (1) determine the reliability of a measure of exercise compliance to a home walking program in heart failure patients using pedometers and exercise diaries; and (2) assess the validity (criterion-related) of pedometers by examining how well they predict improvements in functional status over time **METHODS:** Exercise compliance was measured in 38 patients (74% men) aged 54.1 ± 11.7 years who participated in a home-based exercise program. Each patient was instructed to wear a pedometer on their hip during their waking hours. Daily pedometer scores and duration of walking regimen were recorded for 6 consecutive months. Functional status was measured at baseline and at the completion of the exercise training program using the 6-minute walk test and cardiopulmonary exercise test. A comparison of predicted outcomes as reflected by functional status was made between participants who demonstrated increased pedometer distances (≥ 10 percent change from baseline) and those who showed no change during the 6-month exercise training program. **RESULTS:** Significant Pearson correlations between the 6 monthly pedometer scores ($r = .580-.912$, $p \leq .005$) demonstrated consistency of the measure across time. Pedometer scores and measures of exercise duration were also correlated ($r = .455-.652$, $p \leq .005$). Patients who showed improvements in their pedometer scores had better functional status at 6-months (see table). **CONCLUSION:** The results of this study suggest that the pedometer might be a valid indicator of exercise compliance in HF patients who participate in a home-based exercise training program.

A Comparison of Functional Status at 6-months

		N	Mean \pm SD	F statistic	P value
Pedometer (distance in miles)	Group 1 ^a	20	105.6 \pm 70.2	4.158	.046
	Group 2 ^b	18	85.9 \pm 59.0		
Exercise Diary (duration in hours)	Group 1 ^a	20	29.9 \pm 15.2	4.217	.042
	Group 2 ^b	18	24.4 \pm 8.5		
Six-Minute Walk Test (distance in feet)	Group 1 ^a	20	1717.8 \pm 204.2	5.699	.022
	Group 2 ^b	18	1011.7 \pm 108.3		
Peak VO2 Max	Group 1 ^a	20	16.8 \pm 2.9	7.162	.011
	Group 2 ^b	18	10.0 \pm 1.9		

a = patients with ≥ 10 percent improvement in pedometer scores

b = patients with no improvement in pedometer scores