

Supplement 6. Physical activity assessment across included studies.

Subjective assessment	Number of studies (N = 8)
Compliant vs non-compliant with exercise prescription	N = 5 (Chien, Chen, Garet, & Wang, 2014; Corvera-Tindel, Doering, Gomez, & Dracup, 2004; L. Evangelista et al., 2003; L. S. Evangelista, Berg, & Dracup, 2001; van der Wal et al., 2006)
Daily physical activity, measured using a validated scale, International Physical Activity Questionnaire (IPAQ)	N = 2 (Klompstra, Jaarsma, & Strömberg, 2018; Oka, Gortner, Stotts, & Haskell, 1996)
The European Heart Failure Self-care Behaviour Scale	N = 1 (Gallagher, Luttik, & Jaarsma, 2011)
Compliance rate	N = 1 (L. S. Evangelista et al., 2001)
Objective assessment	Number of studies (N = 9)
Energy expenditure average daily kcal, estimated using accelerometer	N = 4 (Chien et al., 2014; Lee et al., 2016; Moreno-Suarez, Liew, Dembo, Larbalestier, & Maiorana, 2019; Pozehl et al., 2018)
Daily accelerometry units – lowest tertile vs highest tertile	N = 1 (Snipelisky et al., 2017)
Average daily accelerometer units	N = 1 (Witham, Argo, Johnston, Struthers, & McMurdo, 2006)
Steps per day total, measured using accelerometer	N = 3 (Alosco et al., 2012; Dontje et al., 2014; Werhahn et al., 2019)
Duration, hours/day, measured using accelerometer	N = 1 (Werhahn et al., 2019)

The assessment of barriers and enablers across included studies.

Construct	PA outcome	Construct and physical activity assessment
Age	Binary	Years Compliant vs non-compliant with exercise prescription (Chien, Chen, Garet, & Wang, 2014; L. Evangelista et al., 2003; L. S. Evangelista, Berg, & Dracup, 2001)
	Continuous	Daily accelerometry units – lowest tertile vs highest tertile (Snipelisky et al., 2017)
Comorbidity	Binary	Years Average daily accelerometer units (Witham, Argo, Johnston, Struthers, & McMurdo, 2006) Energy expenditure average daily kcal (Chien et al., 2014; Lee et al., 2016; Pozehl, McGuire, et al., 2018) Steps per day total (Alosco et al., 2012; Dontje et al., 2014), IPAQ scale (Klompstra, Jaarsma, & Strömberg, 2018)
	Continuous	Charlson Comorbidity Index Compliant vs non-compliant with exercise prescription (Corvera-Tindel, Doering, Gomez, & Dracup, 2004)
Social support	Binary	Charlson Comorbidity Index Energy expenditure, average daily kcal (Pozehl, McGuire, et al., 2018)
	Continuous	High(>9) vs low(<=9) perceived social support scale score The European Heart Failure Self-care Behaviour Scale score ² (Gallagher, Luttik, & Jaarsma, 2011)
Negative attitude	Binary	--
	Continuous	Negative Attitude Scale ³ Energy expenditure (average daily kcal) (Pozehl, McGuire, et al., 2018)
Positive attitude	Binary	--
	Continuous	Positive Attitude Scale ⁴ Energy expenditure, average daily kcal (Pozehl, McGuire, et al., 2018)
Six-minute Walking Test (6MWT)	Binary	Meter/minute Compliant vs non-compliant with exercise prescription (Corvera-Tindel et al., 2004) Daily accelerometry units – lowest tertile vs highest tertile (Snipelisky et al., 2017)

Construct	PA outcome	Construct and physical activity assessment
	Continuous	Meter/minute Average daily accelerometer units (Witham et al., 2006) Energy expenditure (average daily kcal) (Pozehl, McGuire, et al., 2018) Steps per day total Werhahn et al. (2019)
Physical functioning (self-report)	Binary	Scale score (MOS SF-36) ⁵ Compliant vs non-compliant with exercise prescription (L. S. Evangelista et al., 2001) Scale score (KCCQ) ⁶ Daily accelerometry units – lowest tertile vs highest tertile (Snipelisky et al., 2017)
	Continuous	Scale score (KCCQ) ⁶ Energy expenditure and steps per day (Pozehl, McGuire, et al., 2018; Werhahn et al., 2019)
Symptoms	Binary	--
	Continuous	KCCQ6, total symptom score (symptom subscale) Energy expenditure (Pozehl, McGuire, et al., 2018)
Left Ventricular Ejection Fraction (LVEF), %	Binary	Percentage, % Compliant vs non-compliant with exercise prescription (Corvera-Tindel et al., 2004)
	Continuous	Percentage, % Energy expenditure (Chien et al., 2014; Lee et al., 2016; Pozehl, McGuire, et al., 2018) Steps per day (Dontje et al., 2014; Werhahn et al., 2019)
Self-efficacy	Binary	--
	Continuous	An unspecified self-efficacy scale score A single-item exercise scale (Klompstra et al., 2018) Self-efficacy scale ⁷ Energy. Expenditure ⁸ (Lee et al., 2016) Self-efficacy scale ⁹ score Daily energy expenditure (Chien et al., 2014) Self-efficacy scale Steps per day, total (Dontje et al., 2014) Self-efficacy scale ¹⁰ Daily physical activity ¹¹ (Oka, Gortner, Stotts, & Haskell, 1996) KCCQ self-efficacy score Energy expenditure, kcal (Pozehl, McGuire, et al., 2018)
Depression	Binary	Presence of clinical depression Daily accelerometry units – lowest tertile vs highest tertile (Snipelisky et al., 2017)

Construct	PA outcome	Construct and physical activity assessment
		Hospital Anxiety and Depression scale (HADS) subscale score <i>Compliant vs non-compliant with exercise prescription</i> (Corvera-Tindel et al., 2004) Centre for Epidemiology Surveys-Depression scale (CES-D) <i>Compliant vs non-compliant with exercise prescription</i> (van der Wal, van Veldhuisen, Veeger, Rutten, & Jaarsma, 2010)
	Continuous	HADS score <i>Total steps/day</i> (Alosco et al., 2012) HADS score <i>Accelerometry counts</i> (Witham et al., 2006) PROMIS-29 score <i>Energy expenditure, kcal</i> (Pozehl, Mcguire, et al., 2018)
Digoxin prescription	Binary	<i>Compliant vs non-compliant with exercise prescription</i> (Corvera-Tindel et al., 2004)
	Continuous	--
Doppler estimated filling pressure	Binary	<i>Daily accelerometry units – lowest tertile vs highest tertile</i> (Snipelisky et al., 2017)
	Continuous	--
Dysphoria	Binary	MAACL emotional dysphoria score <i>Compliant vs non-compliant with exercise prescription</i> (Corvera-Tindel et al., 2004)
	Continuous	--
Education	Binary	Education above junior <i>Energy expenditure</i> (Chien et al., 2014) College or over <i>Energy expenditure MET/min/week</i> (Lee et al., 2016) College or over <i>Compliance rate</i> (L. S. Evangelista et al., 2001) Post-secondary degree <i>Energy expenditure, kcal</i> (Pozehl, Mcguire, et al., 2018)
	Continuous	Years <i>Accelerometer, steps per day</i> (Alosco et al., 2012)
Employment	Binary	Yes vs no <i>Energy expenditure</i> (Lee et al., 2016; Pozehl, Mcguire, et al., 2018)
	Continuous	--

Construct	PA outcome	Construct and physical activity assessment
Ethnicity	Binary	Caucasian vs non-Caucasian Daily accelerometry units – lowest tertile vs highest tertile (Snipelisky et al., 2017) Energy expenditure (Pozehl, McGuire, et al., 2018)
	Continuous	-- Caucasian vs non-Caucasian Energy expenditure (Pozehl, McGuire, et al., 2018)
HF duration	Binary	Years Compliant vs non-compliant with exercise prescription (Corvera-Tindel et al., 2004)
	Continuous	Years Energy expenditure total (Lee et al., 2016)
HFrEF (Yes)		HFrEF vs HFpEF Energy expenditure, kcal (Pozehl, McGuire, et al., 2018)
		--
pro-BNP	Binary	--
	Continuous	ng/mL Duration, hours/day (Werhahn et al., 2019)
Hostility	Binary	MAACL hostility score Compliant vs non-compliant with exercise prescription (Corvera-Tindel et al., 2004)
	Continuous	
Income	Binary	--
	Continuous	Above poverty Energy expenditure (Lee et al., 2016)
Left Atrial Volume index (LAV)	Binary	l/m2 Daily accelerometry units – lowest tertile vs highest tertile (Snipelisky et al., 2017)
	Continuous	--
Left Ventricular Assist Device (LVAD)	Binary	Pre-post LVAD Energy expenditure total (Moreno-Suarez, Liew, Dembo, Larbalestier, & Maiorana, 2019)
	Continuous	--
Left Ventricular Remodelling (LVR)		Relative myocardial wall thickness

Construct	PA outcome	Construct and physical activity assessment
	Binary	Daily accelerometry units – lowest tertile vs highest tertile (Snipelisky et al., 2017)
	Continuous	--
Partner	Binary	Living with a spouse, Yes vs No Daily energy expenditure (Chien et al., 2014) Marital status Compliance rate (L. S. Evangelista et al., 2001)
	Continuous	--
PeakVO2	Binary	mL/kg/min Compliant vs non-compliant with exercise prescription (Corvera-Tindel et al., 2004)
	Continuous	mL/kg/min Steps/day, total (Werhahn et al., 2019)
Perceived exertion	Binary	--
	Continuous	IPAQ scale (Oka et al., 1996)
Quality of Life (QoL)	Binary	KCCQ scale ⁶ total score Daily accelerometry units – lowest tertile vs highest tertile (Snipelisky et al., 2017)
	Continuous	KCCQ scale ⁵ total score Energy expenditure (Lee et al., 2016; Pozehl, McGuire, et al., 2018)
Renal function	Binary	Estimated glomerular filtration rate (eGFR) ml/min Accelerometer units lowest tertile vs highest tertile (Snipelisky et al., 2017)
	Continuous	--
Smoking	Binary	--
	Continuous	Smoking (yes vs no) Energy expenditure (Lee et al., 2016)
Symptom distress	Binary	--
	Continuous	MSAS-SF ¹² Energy expenditure, total daily (Chien et al., 2014)

References:

- Alosco, M. L., Spitznagel, M. B., Miller, L., Raz, N., Cohen, R., Sweet, L. H., ... Gunstad, J. (2012). Depression is associated with reduced physical activity in persons with heart failure. *Health Psychology, 31*(6), 754–762. <https://doi.org/10.1037/a0028711>
- Chien, H.-C., Chen, H.-M., Garet, M., & Wang, R.-H. (2014). Predictors of physical activity in patients with heart failure: a questionnaire study. *The Journal of Cardiovascular Nursing, 29*(4), 324–331. <https://doi.org/10.1097/JCN.0b013e31828568d6>
- Corvera-Tindel, T., Doering, L. V., Gomez, T., & Dracup, K. (2004). Predictors of noncompliance to exercise training in heart failure. *The Journal of Cardiovascular Nursing, 19*(4), 269–77; quiz 278. <https://doi.org/10.1097/00005082-200407000-00006>
- Dontje, M. L., van der Wal, M. H. L., Stolk, R. P., Brügemann, J., Jaarsma, T., Wijtliet, P. E. P. J., ... de Greef, M. H. G. (2014). Daily physical activity in stable heart failure patients. *The Journal of Cardiovascular Nursing, 29*(3), 218–226. <https://doi.org/10.1097/JCN.0b013e318283ba14>
- Evangelista, L., Doering, L. V., Dracup, K., Westlake, C., Hamilton, M., & Fonarow, G. C. (2003). Compliance behaviors of elderly patients with advanced heart failure. *The Journal of Cardiovascular Nursing, 18*(3), 197–206; quiz 207. <https://doi.org/10.1097/00005082-200307000-00005>
- Evangelista, L. S., Berg, J., & Dracup, K. (2001). Relationship between psychosocial variables and compliance in patients with heart failure. *Heart & Lung : The Journal of Critical Care, 30*(4), 294–301. <https://doi.org/10.1067/mhl.2001.116011>
- Gallagher, R., Luttik, M.-L., & Jaarsma, T. (2011). Social support and self-care in heart failure. *The Journal of Cardiovascular Nursing, 26*(6), 439–445. <https://doi.org/10.1097/JCN.0b013e31820984e1>
- Klompstra, L., Jaarsma, T., & Strömberg, A. (2018). Self-efficacy Mediates the Relationship Between Motivation and Physical Activity in Patients With Heart Failure. *The Journal of Cardiovascular Nursing, 33*(3), 211–216. <https://doi.org/10.1097/JCN.0000000000000456>
- Lee, H., Boo, S., Yu, J., Suh, S.-R., Chun, K. J., & Kim, J. H. (2016). Physical Functioning, Physical Activity, Exercise Self-Efficacy, and Quality of Life Among Individuals With Chronic Heart Failure in Korea: A Cross-Sectional Descriptive Study. *The Journal of Nursing Research : JNR*. <https://doi.org/10.1097/jnr.0000000000000150>
- Moreno-Suarez, I., Liew, S., Dembo, L. G., Larbalestier, R., & Maiorana, A. (2019). Physical Activity Is Higher in Patients with LVADs Compared to Chronic Heart Failure. *Medicine and Science in Sports and Exercise*. <https://doi.org/10.1249/MSS.00000000000002104>
- Oka, R. K., Gortner, S. R., Stotts, N. A., & Haskell, W. L. (1996). Predictors of physical activity in patients with chronic heart failure secondary to either ischemic or idiopathic dilated cardiomyopathy. *The American Journal of Cardiology, 77*(2), 159–163. [https://doi.org/10.1016/s0002-9149\(96\)90588-3](https://doi.org/10.1016/s0002-9149(96)90588-3)
- Pozehl, B. J., McGuire, R., Duncan, K., Hertzog, M., Deka, P., Norman, J., ... Keteyian, S. J. (2018). Accelerometer-Measured Daily Activity Levels and Related Factors in Patients With Heart Failure. *The Journal of Cardiovascular Nursing, 33*(4), 329–335. <https://doi.org/10.1097/JCN.0000000000000464>
- Snipelisky, D., Kelly, J., Levine, J. A., Koepp, G. A., Anstrom, K. J., McNulty, S. E., ... Redfield, M. M. (2017). Accelerometer-Measured Daily Activity in Heart Failure With Preserved Ejection Fraction: Clinical Correlates and Association With Standard Heart Failure Severity Indices. *Circulation. Heart Failure, 10*(6), e003878.

- <https://doi.org/10.1161/CIRCHEARTFAILURE.117.003878>
- van der Wal, M. H. L., Jaarsma, T., Moser, D. K., Veeger, N. J. G. M., van Gilst, W. H., & van Veldhuisen, D. J. (2006). Compliance in heart failure patients: the importance of knowledge and beliefs. *European Heart Journal*, 27(4), 434–440.
<https://doi.org/10.1093/eurheartj/ehi603>
- Werhahn, S. M., Dathe, H., Rottmann, T., Franke, T., Vahdat, D., Hasenfuß, G., & Seidler, T. (2019). Designing meaningful outcome parameters using mobile technology: a new mobile application for telemonitoring of patients with heart failure. *ESC Heart Failure*, 6(3), 516–525. <https://doi.org/10.1002/ehf2.12425>
- Witham, M. D., Argo, I. S., Johnston, D. W., Struthers, A. D., & McMurdo, M. E. T. (2006). Predictors of exercise capacity and everyday activity in older heart failure patients. *European Journal of Heart Failure*, 8(2), 203–207.
<https://doi.org/10.1016/j.ejheart.2005.03.008>