Clinician's Commentary on LaPier¹

Meta-analyses and systemic reviews have shown exercise-based cardiac rehabilitation (CR) to be effective in reducing total and cardiovascular mortality and hospital admissions. Although more recent trials were included in the latest (2011) Cochrane Review, however, such conclusions are still based on a predominantly male, middle-aged, and low-risk population.² As a result, several questions remain regarding the effectiveness of CR for older adults. The effect of CR on outcomes such as physical function, functional impairment, and disability needs to be clarified. Patients with coronary heart disease (CHD) have generally higher rates of disability than those without CHD,³ but the burden of disability is heavier for older CHD patients, particularly women, as disability rates increase with advanced age.⁴ Longer hospitalizations after a cardiac event in older persons relative to their younger counterparts can result in greater subsequent disability and mobility limitations.³⁻⁵ Therefore, preventing or limiting the rate of disability progression is a major goal of CR for older adults.⁶⁻⁸

Early detection of physical limitations and appropriate physical-activity intervention are important in preventing or delaying physical disability for many patients. Assessment of physical function plays a central role in the early recognition of physical limitations and in disability prevention. Traditionally, in CR, exercise tolerance has been used as a marker of overall physical function. However, exercise tolerance has been shown to be a poor predictor of a person's ability to perform activities of daily living,⁹ as cardiovascular fitness is only one of several parameters of physical function. Other performance-based measures, such as timed walk tests, sit-to-stand tests, walking speed, and stair-climbing ability, are frequently used clinically.¹⁰

The Late-Life Function and Disability Instrument (LLFDI) was developed to measure function and level of participation in community-dwelling older adults and to address the limitations of existing outcome measures. Many self-report tools that measure function and disability are not sensitive to small changes or have a ceiling effect in populations with diverse abilities, including patients with CHD.¹¹ More sensitive outcome measures are needed for patients who are at a higher functional status, and the LLFDI appears to address this limitation of existing outcomes.

LaPier successfully demonstrates that the LLFDI is valid in older adults (>60 y) with CHD and that it can be completed independently by self-report instead of having to be administered by clinicians, which improves its clinical utility. However, she acknowledges the shortcoming of the study population—mostly male and Caucasian—recruited as a small convenience sample. The sample is representative of the CHD population currently attending CR, but not of the population living with CHD. Guidelines are being implemented to help with automatic referral in Canada, with the goal of reducing CR referral and attendance barriers for special populations such as women, very old adults, and those with varied ethnic and racial backgrounds. The validity of the LLFDI in these diverse populations should therefore be examined.

Although valid, the LLFDI—like other self-report instruments on physical function—may provide inaccurate information when

discrepancies exist between patients' perceptions of their physical function and their actual ability to perform certain tasks. When used alone, self-report measures may paint a biased picture of the patient's physical function; in addition, they provide little information about the type of impairment affecting the individual, and in general are not sensitive to subtle but clinically relevant changes. These two limitations may be particularly problematic in a CR setting if the objective is to design and evaluate an intervention aimed at improving specific aspects of physical function. The greatest barrier to using the LLFDI in a clinical setting is the response burden and administration time, which may reduce the measure's use by clinicians.

LaPier suggests that the LLFDI could replace a currently used outcome measure for use with all or some CR participants. However, an advantage of generic measures such as the Medical Outcomes Study 36-Item Short Form Health Survey (SF-36), and of timed walk tests such as the 6-Minute Walk Test (6MWT), is that they permit comparisons across disease conditions or diagnoses. Despite the LLFDI's moderate correlation with the 6MWT and other performance-based measures, the rich information outside of the actual scores of these measures (e.g., indicators of prognosis, mobility, and safety) would be difficult to replicate without performance assessment.

Among CR patients, gains in directly observed physical function (with performance-based measures) do not always translate into gains in self-reported physical function. LaPier's findings offer additional support for the theory that self-report and performance-based measures of physical function do not measure exactly the same construct and that performance-based measures are more sensitive to change than self-report measures.¹⁰

The population of community-dwelling older adults includes a sub-group of high-functioning patients who "can often benefit from physical therapy services, but demonstrating baseline functional limitation and participation restriction, as well as improvement with intervention is often challenging."^{1(p.54)} However, accessing affordable community-based rehabilitation services can be difficult for older adults on limited income. In my clinical experience, a well-designed aerobic and strengthening programme in the CR setting, by physical therapists in particular, helps with return to function without the need for external referrals to manage specific impairments. Physical therapists are movement and function specialists, and through exercise prescription, education, and counselling can empower and assist older persons with CHD in returning to and maximizing function safely and appropriately.

*Mireille Landry, BScPT, MSc, Cert. Sport Physiotherapy,
Cert. Diabetes Educator
Physiotherapist and Exercise Coordinator
Women's Cardiovascular Health Initiative,
Women's College Hospital;
Lecturer (status-only), Department of Physical Therapy,
University of Toronto
Toronto, ON
mireille.landry@wchospital.ca*

REFERENCES

1. LaPier TK. Utility of the Late-Life Function and Disability Instrument as an outcome measure in patients participating in outpatient cardiac rehabilitation: a preliminary study. *Physiother Can.* 2011;64(1):53–62. <http://dx.doi.org/10.3138/ptc.2010-30>
2. Heran BS, Chen JMH, Ebrahim S, et al. Exercise-based cardiac rehabilitation for coronary heart disease. *Cochrane Database Syst Rev.* 2011;(7):CD001800. <http://dx.doi.org/10.1002/14651858.CD001800.pub2>. Medline:21735386
3. Aggarwal A, Ades PA. Exercise rehabilitation of older patients with cardiovascular disease. *Cardiol Clin.* 2001;19(3):525–36. [http://dx.doi.org/10.1016/S0733-8651\(05\)70234-4](http://dx.doi.org/10.1016/S0733-8651(05)70234-4). Medline:11570122
4. Pinsky JL, Jette AM, Branch LG, et al. The Framingham Disability Study: relationship of various coronary heart disease manifestations to disability in older persons living in the community. *Am J Public Health.* 1990;80(11):1363–7. <http://dx.doi.org/10.2105/AJPH.80.11.1363>. Medline:2240306
5. Nickel JT, Chirikos TN. Functional disability of elderly patients with long-term coronary heart disease: a sex-stratified analysis. *J Gerontol.* 1990;45(2):S60–8. Medline:2313054
6. Ades PA, Savage PD, Tischler MD, et al. Determinants of disability in older coronary patients. *Am Heart J.* 2002;143(1):151–6. <http://dx.doi.org/10.1067/mhj.2002.119379>. Medline:11773926
7. Audelin MC, Savage PD, Ades PA. Exercise-based cardiac rehabilitation for very old patients (≥ 75 years): focus on physical function. *J Cardiopulm Rehabil Prev.* 2008;28(3):163–73. Medline:18496314
8. Stone JA, Arthur HM, Suskin NG, editors. Canadian guidelines for cardiac rehabilitation and cardiovascular disease prevention: Translating knowledge into action. 3rd ed. Winnipeg: Canadian Association of Cardiac Rehabilitation; 2009.
9. Neill WA, Branch LG, De Jong G, et al. Cardiac disability: the impact of coronary heart disease on patients' daily activities. *Arch Intern Med.* 1985;145(9):1642–7. <http://dx.doi.org/10.1001/archinte.145.9.1642>. Medline:4026494
10. Pepin V, Alexander JL, Phillips WT. Physical function assessment in cardiac rehabilitation: self-report, proxy-report and performance-based measures. *J Cardiopulm Rehabil.* 2004;24(5):287–95. <http://dx.doi.org/10.1097/00008483-200409000-00001>. Medline:15602146
11. Dubuc N, Haley SM, Ni P, et al. Function and disability in late life: comparison of the Late-Life Function and Disability Instrument to the Short Form-36 and the London Handicap Scale. *Disabil Rehabil.* 2004;26(6):362–70. <http://dx.doi.org/10.1080/09638280410001658667>. Medline:15204488

DOI:10.3138/ptc.2010-30-cc