

Letters to the Editor

A Multiprofessional Face-to-Face and Remote Real-Time Hybrid Mode of Exercise-Based Cardiac Rehabilitation: An Innovative Proposal During the COVID-19 Pandemic



To the Editor:

Exercise-based cardiac rehabilitation is largely recognized as a cost-effective therapeutic strategy for several clinical conditions and formally recommended and endorsed by a number of institutional guidelines.¹ Since 1994, in our medically supervised exercise program, more than 2500 patients have completed over 450,000 patient-hours in exercise sessions. However, during the COVID-19 pandemic, as happened worldwide, our on-site exercise sessions were suspended, and we had to quickly implement alternative options of home-based programs, using recent advances in telecommunications and health-monitoring technology.^{2,3}

Among our options, for some specific patients—especially those who are more fragile, have more complex clinical conditions, or are very limited in using advanced technological resources—we developed and introduced an innovative proposal of a hybrid model of face-to-face (physiotherapists and physical educators) and real-time remote (exercise physicians) actions.

Experienced and well-trained exercise professionals with the skills to manage core clinical areas—including cardiac, respiratory, musculoskeletal and elderly care, and who are qualified in basic cardiac life support—visit patients' homes 1 to 3 times per week. Before starting the exercise session, they collect and transmit real-time patient signs and symptoms including resting blood pressure, heart rate, pulse oximetry, and 1-lead electrocardiographic tracing to a physician, who reviews these data (Fig. 1). If needed, the physician contacts the patient by video, with the help of the exercise professional, adjusting the exercise prescription. Physiological and perceptual data are continuously monitored throughout the exercise session—typically lasting 30 to 45 minutes—and includes individually prescribed aerobic, resistance, flexibility, balance, and respiratory exercises. So far, no relevant exercise-induced events have been reported, and adherence of patients has been remarkably high. In 1 occasion, the session was aborted because of detection of atrial fibrillation with uncontrolled ventricular rate in an asymptomatic very elderly patient.

CLINIMEX-home emerged as a new method of delivery of exercise programs. Through the combination of home visits by an exercise professional and remote real-time specialized medical support, CLINIMEX-home enables provision of individualized care according to the changing needs of patients throughout the course of their illnesses, expands the possibility of attending patients with complex cases across a broad range of clinical conditions, and extends access to safe and effective regular exercise sessions. In conclusion, in the post-pandemic era, most likely home-based cardiac rehabilitation with technological support and face-to-face exercise options will be combined. Therefore, more patients will be able to benefit of these programs, minimizing the widely recognized underuse of cardiac rehabilitation around the world.⁴

Claudio Gil Soares de Araújo, MD, PhD
cgaraujo@iis.com.br

Christina Grüne De Souza e Silva, MD, PhD

Funding Sources

The authors have reported no funding sources.

Disclosures

The authors have no conflicts of interest to disclose.

References

1. Abreu A, Frederix I, Dendale P, et al. Standardization and quality improvement of secondary prevention through cardiovascular rehabilitation programmes in Europe: the avenue towards EAPC accreditation programme: a position statement of the Secondary Prevention and Rehabilitation Section of the European Association of Preventive Cardiology (EAPC). *Eur J Prev Cardiol* 2020 Jun 1. 2047487320924912 [E-pub ahead of print].
2. Babu AS, Arena R, Ozemek C, Lavie CJ. COVID-19: a time for alternate models in cardiac rehabilitation to take centre stage. *Can J Cardiol* 2020;36:792-4.
3. Kuehn BM. Pandemic intensifies push for home-based cardiac rehabilitation options. *Circulation* 2020;142:1781-2.
4. Alpert JS. Cardiac rehabilitation: an underutilized class I treatment for cardiovascular disease. *Am J Med* 2020;133:1005-6.



Figure 1. The exercise professional sending real-time physiological data from a 93-year-old female patient to a remote exercise physician during an exercise session in the CLINIMEX-home program.