

## Coronavirus Disease (COVID-19) Pandemic: An Opportunity Window to Implement Home-Based Cardiac Rehabilitation

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The World Health Organization declared that the new coronavirus outbreak is a public health emergency of pandemic proportions. The outbreak has caused various governments to take protective measures such as lockdown of cities, travel bans, prohibition of group gatherings and public events, and social distancing. Many health and exercise training facilities were closed, as well as cardiac rehabilitation services. These restrictions are disrupting people's daily activities.

Although staying at home can contain virus spread, it will certainly reduce regular physical activity and increase sedentary behavior, which can increase the risk of development and worsening of chronic conditions.<sup>1-7</sup> Therefore, there is a strong evidence for continuing physical activity at home even during the pandemic situation.

Cardiac rehabilitation should be an integral component in the continuum of care for patients with cardiovascular disease.<sup>8-12</sup> Nevertheless, only a small number of patients that would benefit from cardiac rehabilitation is referred to the program. In the United Kingdom less than 20% of patients discharged with a diagnosis of heart failure are referred to cardiac rehabilitation.<sup>13</sup> In the United States, patient participation in cardiac rehabilitation is also low, with only 16.3% of Medicare patients and 10.3% of veterans after hospital discharge for myocardial

infarction, percutaneous coronary intervention or coronary artery bypass graft surgery.<sup>14</sup> In Brazil, access to cardiac rehabilitation programs is also suboptimal.<sup>15</sup>

There is an urgent need for new cardiac rehabilitation strategies that overcome current geographical, logistical, cost-related and access-related barrier.<sup>13,16</sup> Although training at home is usually recommended when training at cardiac rehabilitation facility is not possible, few physicians feel confident prescribing stand-alone exercises to cardiac patients. Nevertheless, the European Guidelines on Cardiovascular disease prevention states that "home-based rehabilitation with and without telemonitoring holds promise for increasing participation and supporting behavioral change".<sup>17</sup> Noteworthy, Cochrane reviews<sup>18-20</sup> concluded that home-based cardiac rehabilitation and traditional cardiac rehabilitation programs have similar effects on quality of life of patients with recent myocardial infarction or coronary revascularization.

The American College of Cardiology, the American Heart Association and the American Association of Cardiovascular and Pulmonary Rehabilitation have recently published a scientific statement on home-based cardiac rehabilitation.<sup>16</sup> In this document, cardiac rehabilitation interventions should include exercise training, dietary education, medication management, tobacco counseling and psychosocial assessment.

It is important to note that proper patient evaluation at baseline is critical to correctly prescribe these interventions. Although cardiopulmonary exercise testing and physical examination cannot be performed remotely, telemedicine may offer the possibility of history taking.<sup>21</sup> We must consider that, for patients already participating in formal cardiac

### Keywords

Coronavirus/isolation & purification; Coronavirus Infections/prevention and control; Syndrome Acute Respiratory; Cardiovascular Diseases; Hypertension; Diabetes; Comorbidity; Physical Activity; Exercise; Cardiac Rehabilitation; Public Health Services.

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rehabilitation programs, exercise prescriptions will probably not need to be changed during the social distancing period.

Despite the fact that severe cardiovascular events are rare during cardiac rehabilitation trainings,<sup>22</sup> safety is a major concern in cardiac rehabilitation facilities and this should not be different in remote rehabilitation programs. Thus, in cases where social distance prevented proper patient evaluation and risk assessment, light-intensity exercise should be preferred and cardiac rehabilitation should focus on dietary education, medication management, tobacco counseling and psychosocial assessment that can be delivered remotely.

Therefore, current evidence suggests that remote cardiac rehabilitation programs must be implemented during the pandemic, since the risks of sedentary behavior outweigh the risks of well-planned programs.

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## Author contributions

Conception and design of the research; Acquisition of data; Analysis and interpretation of the data; Writing of the manuscript; Critical revision of the manuscript for intellectual content: Castro RRT.

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