

COVID-19 era in long-term cardiac rehabilitation programs: how did physical activity and sedentary time change compared to previous years?

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Introduction: Cardiovascular rehabilitation (CR) was one of the many areas negatively affected by the COVID-19 pandemic. A high number of cardiovascular disease (CVD) patients had their centre-based program suspended. Physical activity (PA) recommendations for CVD patients are well established and its benefits largely documented. However, few studies have objectively measured the PA of these patients throughout the years and specifically during the COVID-19 pandemic.

Purpose: To objectively measure PA and sedentary time (ST) during COVID-19 pandemic in comparison with the previous 2 years in CVD patients who were attending a phase III centre-based CR program.

Methods: Before COVID-19, eighty-seven CVD patients (mean age 62.9 ± 9.1 , 82.8% male) were attending a face-to-face long-term CR program. Of the 87 patients, 78.2% have been on the program for at least 1 year. Every year, PA and ST were objectively assessed by accelerometry. After the CR centre-based program suspension due to COVID-19, efforts were done to create a CR home-based digital model to maintain the continuum of care and avoid losing the previous acquired benefits. After 7 months of suspension, the face-to-face CR centre was reopened and 57.5% ($n = 50$) patients returned. We completed the assessment of PA and ST of 37 patients (mean age 64.8 ± 8.1 , 89.2% male) and compared it as follows: M1) two assessments before COVID-19; M2) last assessment before COVID-19; M3) 7 months after CR program suspension (last trimester of 2020). Patients wore an ActiGraph accelerometer for 7 consecutive days to assess daily and weekly minutes of light PA, moderate-to-vigorous PA and ST. We used repeated-measures ANOVA and Wilcoxon signed rank as a non-parametric alternative.

Results: Intention-to-treat analysis showed that in M3 patients decreased their average daily time spent in moderate-to-vigorous PA when compared with M2 (M3: 37.90 ± 3.30 min/day vs M2: 45.01 ± 3.14 min/day, $p = 0.035$), no changes were found between M1 and M2. Average daily time spent in light PA improved significantly from M1 to M2 (M1: 154.81 ± 7.20 min/day vs M2: 169.17 ± 6.44 min/day, $p = 0.042$) but did not change from M2 to M3. Despite this, in M3, 81.08% of the patients still met the recommendations for moderate-to-vigorous PA (M1: 89.19% and M2: 91.89%). No changes were found in ST.

Conclusion: Despite a significant decrease on the amount of moderate-to-vigorous PA during the COVID-19 era, most CVD patients, first in the centre-based CR program and after in the home-based CR program, were able to meet PA recommendations throughout the last years. These findings suggest that CVD patients who attend supervised long-term CR programs might be aware of the importance of reaching PA guidelines. Reducing ST by replacing it by PA of any intensity could be an important and reachable target for long-term CR programs.