

## Physical activity levels and sedentary behaviour patterns in patients attending a phase 3 cardiac rehabilitation program: does age matter?

G. Cicio Rodrigues De Sa<sup>1</sup>, M. Borges<sup>1</sup>, M. Lemos Pires<sup>1</sup>, P. Alves Da Silva<sup>2</sup>, A. Abrantes<sup>2</sup>, M. Novakovic<sup>3</sup>, F.J. Pinto<sup>4</sup>, A. Abreu<sup>5</sup>, R. Pinto<sup>1</sup>

<sup>1</sup>Faculty of Medicine of the University of Lisbon, Cardiovascular Centre of the University of Lisbon (CCUL@RISE), Lisbon, Portugal

<sup>2</sup>North Lisbon University Hospital Centre (CHULN), Department of Heart and Vessels, CCUL@RISE, Lisbon, Portugal

<sup>3</sup>University Medical Centre Ljubljana, Department of Vascular Diseases, Ljubljana, Slovenia

<sup>4</sup>Faculty of Medicine of the University of Lisbon, Department of Heart and Vessels, CHULN, CAML, CCUL@RISE, Lisbon, Portugal

<sup>5</sup>Faculty of Medicine of the University of Lisbon, Department of Heart and Vessels, CHULN, CAML, ISAMB, CCUL@RISE, Lisbon, Portugal

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**Introduction:** In cardiovascular disease (CVD) patients, higher levels of moderate to vigorous physical activity (MVPA) are associated with lower cardiovascular risk and mortality levels. Contrarily, sedentary behaviour (SB) is an important cardiovascular risk factor with a negative health impact. Strategies to reduce SB have been ineffective so far. Understanding if this behaviour occurs in CVD patients attending a long-term cardiac rehabilitation (CR) program, according to age, might give new insights to optimize and to tailor future interventions.

**Purpose:** To analyse SB, light physical activity (PA) and MVPA levels and patterns in CVD patients attending a phase III CR program on exercise session days and non-exercise session days, and to compare them between two age groups (< 65 years old vs ≥ 65 years old).

**Methods:** CVD patients were assessed when entering the CR phase III program. The CR exercise sessions were conducted 2 or 3 times per week, 60 minutes/session. PA and SB were evaluated using an accelerometer for seven consecutive days. Comparisons were made between the average of light PA, MVPA and SB in CR days and non-CR days. Average of SB was presented in percentage of waking hours. Demographic and clinical outcomes were retrieved. Independent-samples T-test and Mann-Whitney U test were used according to the variables distribution.

**Results:** Two hundred and thirteen CVD patients completed all assessments. There were 123 patients in the adult group (< 65 years old) [55±7 years, 81.3% men, 85.2% coronary artery disease (CAD)] and 90 patients in the elderly group (≥ 65 years old) (70±5 years, 76.7% men, 83.3% CAD). Comparing CR exercise session days with non-CR days, the adult group showed significantly higher levels of MVPA (66±3 min/day vs. 43±3 min/day, p<0.001) and lower SB level (73±1% waking hours vs. 76±1% waking hours, p=0.003). Similarly, in the elderly group, levels of MVPA were higher (52±3 min/day vs. 33±3 min/day, p<0.01) and levels of SB were lower (75±1% waking hours vs. 78±1% waking hours, p<0.01), when CR session days were compared with non-CR days, but also light PA was superior on CR session day (172±5 min/day vs. 160±5 min/day, p=0.03). When we compared weekly PA levels between both groups, MVPA was expectedly superior in the adult group (368±17 min/week vs. 281±19 min/week, p<0.01). SB did not differ between groups.

**Conclusion:** These findings demonstrate that CVD patients attending a phase III CR program, regardless of age, achieved MVPA recommendations levels on both CR exercise session days and non-session days, but SB remains high on both days regardless of the age group. Patients should be strongly encouraged to maintain their PA levels on CR session days and non-session days, and to replace SB with at least light PA. Future analyses targeting other vulnerable groups might be needed to create and suggest more tailored interventions to counteract this issue.