

**Title: Exercise-based secondary prevention program impacts physical activity behavior and cardiorespiratory fitness in older outpatients after acute coronary syndrome.**

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**Background:** Older cardiac patients show the highest risk of sedentary behavior and mobility limitation. Despite benefits of physical activity are well-recognized in secondary prevention programs, patients with acute coronary syndrome (ACS) are less likely to attend traditional center-based interventions.

**Objectives:** To examine long-term changes in behavior and exercise capacity of patients with ACS involved in a center- and home-based secondary prevention program.

**Methods:** A total of 118 patients (mean age 76 years) was analyzed. Main outcomes were long-term changes in self-reported weekly leisure-time physical activity (wLTPA), walking speed (WS) and estimated cardiorespiratory fitness (eCRF,  $VO_2$ peak). Intervention program consisted of 7 individual on-site sessions including motivational interviewing to reach exercise goals. Exercise prescription was based on the results of a treadmill walk test to estimate  $VO_2$ peak. Functional variables were assessed during each visit after discharge.

**Results:** Follow-up at 6-, 12-, and 24-months, was completed by 87, 76, and 70 patients respectively. wLTPA significantly increased during the follow-up period (median METs/h/week 2.5, 11.2, 12.0, and 13.4 at baseline, 6-, 12-, and 24-months, respectively;  $P < 0.0001$ ). These results were associated with increasing median WS ( $2.9 \pm 1.0$ ,  $4.3 \pm 1.2$ ,  $4.5 \pm 1.1$ ,  $4.5 \pm 1.2$  km/h, respectively,  $P < 0.0001$ ), and  $VO_2$ peak (16.5, 21.4, 21.1, 21.3 mL/kg/min, respectively,  $P < 0.0001$ ).

**Conclusions:** This early, individualized exercise intervention improved long-term adherence to a physically active lifestyle, walking capacity and eCRF in older patients after ACS. Results may provide valuable insights for the development of exercise-based secondary prevention programs.