

15th Global Cardiology Summit

August 08-09, 2022 | Webinar

Carles Blasco-Peris, J Interv Gen Cardiol 2022, Volume 06

Effects of Exergaming in Patients with Cardiovascular Disease Compared to Conventional Cardiac Rehabilitation: A Systematic Review and Meta-Analysis

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Exercise-based cardiac rehabilitation (CR) programs are used for improving prognosis and quality of life in patients with cardiovascular disease (CVD). Nonetheless, adherence to these programs is low, and exercise-based CR programs based on virtual reality (i.e., exergaming) have been proposed as an alternative to conventional CR programs. However, whether exergaming programs are superior to conventional CR programs in patients with CVD is not known. Objective: This systematic review with meta-analysis was conducted to explore whether exergaming enhances exercise capacity, quality of life, mental health, motivation, and exercise adherence to a greater extent than conventional CR programs in patients with CVD. Method: Electronic searches were carried out in Pubmed, Embase, Web of Science, and Cumulative Index to Nursing and Allied Health Literature databases up to June 2021. Meta-analyses were performed using robust variance estimation with small-sample corrections. The effect sizes were calculated as the mean differences (MD) or standardized mean differences (SMD) as appropriate. The SMD magnitude was classified as trivial (<0.20), small (0.20-0.49), medium (0.50-0.79), or large (≥ 0.80). Heterogeneity was interpreted based on the I² statistics as low (25%), moderate (50%), or high (75%). Results: Pooled analyses showed no differences between exergaming and conventional CR programs for enhancing exercise capacity (i.e., distance covered in the six-minute walk test) (MD = 14.07 meters [95% confidence interval (CI) -38.18 to 66.32 meters]; $p = .426$) and mental health (SMD = 0.17 [95% CI -0.36 to 0.70]; $p = .358$). The results showed a small, statistically non-significant improvement in quality of life in favor of exergaming (SMD = 0.22 [95% CI = -0.37, 0.81]; $p = .294$). Moderate heterogeneity was found for exercise capacity (I² = 53.7%), while no heterogeneity was found for quality of life (I² = 3.3%) and mental health (I² = 0.0%). Conclusions: Exergaming seems not to be superior to conventional CR programs for improving exercise capacity, quality of life, or mental health in patients with CVD.

Biography

Junior researcher Blasco-Peris is an experienced project manager who works in the Alicante Institute of Health and Biomedical Research (ISABIAL). Postgraduate in Research and Intervention in Science and PhD student at the University of Valencia and Miguel Hernández University of Elche.

Blasco-Peris holds over 7 years of experience in the health and biomedical field, expert in preparation of competitive proposals, participation in consortia, project monitoring and results dissemination.

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Received: July 15, 2022; **Accepted:** July 17, 2022; **Published:** July 20, 2022
