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Aging & Chronic Diseases

Exercise in patients with chronic respiratory diseases

...are cardiovascular comorbidities and outcomes taken into account?

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Despite the large number of studies exploring the effects of exercise programmes in patients with chronic respiratory diseases, the majority does not include patients suffering from cardiovascular comorbidities, and the ones who do, do not report any specific exercise tailoring to these conditions.

Patients with chronic obstructive pulmonary disease (COPD), asthma and interstitial lung diseases (ILD) frequently suffer from cardiovascular comorbidities, which further impair their functional status and health-related quality of life and increase mortality risk. Exercise training has been identified as a cornerstone intervention for the management of these conditions, but recommendations on how to tailor exercise programmes to patients suffering from respiratory diseases and cardiovascular comorbidities are still limited.

Therefore, a two-phase systematic review was conducted aiming to identify the eligibility criteria used to select patients with COPD, asthma or ILD and cardiovascular comorbidities to exercise programmes, to assess the impact of exercise on cardiovascular outcomes and to identify how exercise programmes were tailored to cardiovascular comorbidities.

PubMed, Scopus, Web of Science and Cochrane were searched. Three reviewers extracted the data and two reviewers independently assessed the quality of studies with the Quality Assessment Tool for Quantitative Studies. Phase 1 identified the eligibility criteria that have been used to select patients with cardiovascular comorbidities in clinical trials investigating the effectiveness of exercise programmes. Phase 2 assessed the impact of exercise training on cardiovascular outcomes and identified how the exercise programmes have been tailored to patients' cardiovascular comorbidities.

180 studies were included in phase 1 and 42 in phase 2. In phase 1 it was found that most studies (58.9%) excluded patients with both stable and unstable cardiovascular comorbidities. In phase 2, only 26 studies reported to assess cardiovascular outcomes and resting heart rate was the most reported outcome measure. The majority of the studies (71.4%) presented only small to moderate effects in the cardiovascular outcome measures reported. No specific adjustments to exercise prescription were described.

Although there is a large number of studies exploring the effects of exercise training in patients with chronic respiratory diseases, only a few have included patients with cardiovascular comorbidities. Limited effects of the exercise programmes were found on cardiovascular outcome measures, possibly due to the lack of tailoring of the exercise prescription and comprehensiveness of the cardiovascular outcome measures used. Future studies should try to bridge the gap in the literature by exploring the effect of specifically tailored exercise programmes on relevant outcome measures in patients with respiratory disease and cardiovascular comorbidities.

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