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Impact of telehealth exercise intervention on muscle strength, cardiorespiratory fitness, and quality of life in patients with cancer: a systematic review with meta-analysis

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Introduction
Cardiorespiratory fitness (CRF), muscle strength are prognostic factors in cancer. Although exercise can improve these parameters, many patients remain insufficiently, especially due to the lack of accessible services. Telehealth interventions overcomes these obstacles, although concerns remains about its effectiveness. This meta-analysis primarily aims to determine the impact of exercise delivered via telehealth on CRF, strength, and quality of life (QoL) in patients with cancer.

Methods
A systematic search on PubMed/MEDLINE, Scopus, Web of Science, CINAHL, and Cochrane was conducted. Randomized controlled trials testing the impact of exercise delivered by telehealth on CRF, upper- and lower-limb strength, and QoL were included. To quantify the magnitude of change a random-effects meta-analysis was conducted.

Results
Twenty-eight studies were included, comprising 2,212 patients (mean age 56.6 ± 8.6 years; BMI 28.3 ± 5.1 kg/m²). The sample included individuals with breast, prostate, and various mixed cancer types, mostly diagnosed with stage I–III disease. Telehealth-delivered exercise produced significant improvements in CRF (SMD = 0,204; p = 0,0007) and lower-limb strength (SMD = 0,41; p = 0,016). No significant effects emerged for upper-limb strength (SMD = 0,01; p = 0,94), QoL (SMD = 0,09; p = 0,566), and physical function (SMD = 0,26; p = 0,134). Stratifying for telehealth mode, eHealth interventions showed greater benefits for CRF and lower limb strength, wearable device for CRF and gaming for physical functioning. About exercise type, aerobic training revealed larger improvements in CRF and combined interventions (aerobic + resistance) in CRF, lower-limb strength and physical functioning.

Conclusion
Telehealth-delivered exercise significantly improve CRF and lower-limb strength in patients with cancer, although effects on QoL and upper-limb strength remain limited. Overall, these findings support telehealth as a promising strategy to improve key fitness outcomes while underscoring the need for more targeted and standardized interventions.

Keywords

Telehealth
Exercise
Physical fitness
Quality of life

Conflict of Interest & Ethical Approval

yes

Abstract submitters declaration

yes

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