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Efficacy of Individualized Exercise Prescription in Cancer Rehabilitation

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Background: About one-third of cancer patients participate in a unique three-week rehabilitation program after tumor treatment in Germany. Given the short duration, therapy must be highly efficient, yet exercise prescription is often not individualized.

Methods: In this randomized controlled trial, we compared two exercise arms. The individualized training arm (IT) trained at 50% of hypothetical one-repetition-maximum (h1RM) and 60% of peak power output (PPO). The comparator arm (COM) trained self-directed (BORG 11–14).

Results: COM participants trained at 37–48% of maximum performance. Despite this, they showed significant improvements in all motor tests: PPO (mean = 12.5 W, SE = 4.7, p = 0.009), Leg-Press (24.9 kg, SE = 4.7, p < 0.001), Chest-Press (3.1 kg, SE = 1.1, p = 0.006), Rowing (5.4 kg, SE = 1.3, p < 0.001), and Ventral Flexion (6.8 kg, SE = 1.7, p < 0.001). IT participants demonstrated incremental benefits over COM in all motor tests except ventral flexion: PPO (14.8 W, SE = 5.9, p = 0.014), Leg-Press (15.2 kg, SE = 6.0, p = 0.013), Chest-Press (4.09 kg, SE = 1.4, p = 0.005), Rowing (5.6 kg, SE = 1.7, p < 0.001), and Ventral Flexion (2.9 kg, SE = 2.2, p = 0.182). For quality of life (QoL) and physical functioning, both arms improved significantly, but the additional benefit of IT did not reach significance for QoL (5.8, SE = 3.4, p = 0.090) or physical functioning (3.5, SE = 2.3, p = 0.129).

Conclusion: The conventional three-week rehabilitation effectively improves motor performance, quality of life, and physical functioning in cancer survivors. A personalized approach may further enhance these outcomes.

Keywords

Rehabilitation, personalized exercise therapy, exercise prescription, cancer survivors

Conflict of Interest & Ethical Approval

yes

Abstract submitters declaration

yes

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