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Design and implementation of a personalized exercise program for improving physical function in cancer survivors (CanReAct Project)

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Cancer survivors often experience long-term treatment side effects that substantially diminish their functional capacity and quality of life (QoL). Among the wide range of symptoms reported, chronic fatigue and loss of physical function—particularly reduced cardiorespiratory fitness, flexibility, and muscle strength—emerged as the most debilitating. These symptoms vary widely across individuals, highlighting the need for tailored, multi-modal rehabilitation approaches. Building on previous research and preliminary patient feedback, this study aimed to design, implement, and evaluate a personalized, exercise-based program targeting the physical and fatigue-related challenges faced by cancer survivors.

Eligible participants included individuals diagnosed with cancer at any treatment stage who had no contraindications to exercise. After completing informed consent and a PAR-Q+ form, participants underwent baseline assessments of fatigue, health-related QoL, and physical function, including cardiorespiratory fitness, muscular endurance, flexibility, balance, and body composition. Using these results and patient-reported symptoms, researchers developed individualized 12-week exercise programs incorporating aerobic, resistance, and flexibility training. Each program was supervised by an exercise physiologist or physiotherapist, who provided weekly guidance through online sessions, phone calls, and email check-ins. Programs were adjusted every four weeks based on participant progress.

Upon completing the 12-week intervention, participants repeated the physical assessments and questionnaires. Results demonstrated significant improvements in aerobic capacity and muscular endurance, alongside meaningful reductions in cancer-related fatigue. Additionally, a strong positive correlation was observed between post-intervention muscular endurance and reduced fatigue, indicating that gains in strength and endurance may play a key role in managing persistent fatigue.

Overall, this study concludes that personalized, multi-component exercise programs can effectively improve physical function and lessen cancer-related fatigue among survivors. Future research should refine assessment and exercise-prescription processes to further optimize recovery and long-term health outcomes for this population.

Keywords

Cancer, cancer-related-fatigue, exercise, aerobic, resistance, cardiorespiratory fitness, quality of life

Conflict of Interest & Ethical Approval

yes

Abstract submitters declaration

yes

Author: Dr GUPTA, ANANYA (UNIVERSITY OF GALWAY)

Co-authors: Mr HUSSEY, Conor (University of Galway); Prof. KERIN, MichaelJ (University of galway); Ms KAMTI, Rani (University of Galway); Dr CHEW, Sonya (University of Galway); Dr JIANG, Yanping (University of Galway)

Presenter: Dr GUPTA, ANANYA (UNIVERSITY OF GALWAY)

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