



A Research Protocol for a Prehabilitation Programme of Aerobic and Resistance Exercise to Enhance Functional Recovery Following Colorectal Cancer Surgery in Dakar, Senegal

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Abstract

Colorectal cancer is a major health concern in Senegal, where surgery is a primary treatment. Post-operative functional decline is frequent, potentially delaying recovery and increasing complications. Prehabilitation, using exercise to increase physiological capacity before surgery, may improve outcomes, but its effectiveness in West African healthcare settings is not well documented. This protocol describes a study to evaluate the effect of a structured prehabilitation exercise programme on functional recovery following colorectal cancer surgery in Dakar. The primary objective is to compare post-operative functional walking capacity, measured by the six-minute walk test, between an intervention group and a usual care group. Secondary objectives are to compare post-operative complication rates, length of hospital stay, and health-related quality of life. A single-centre, two-arm randomised controlled trial will be implemented. Eligible patients awaiting elective colorectal cancer resection will be randomised to a prehabilitation group or a usual care control group. The prehabilitation group will complete a supervised, individualised programme of moderate-intensity aerobic and resistance exercise for a minimum of three weeks before surgery. The control group will receive standard pre-operative advice. Outcomes will be measured pre-operatively and at four and eight weeks post-operatively. Data analysis will follow intention-to-treat principles. This is a study protocol; no empirical results are available. It is hypothesised that the prehabilitation group will show a clinically important improvement in functional walking capacity compared to the control group, with an estimated mean difference of at least 30 metres in the six-minute walk test at eight weeks.

post-surgery. This protocol establishes a framework for assessing the implementation and efficacy of an exercise prehabilitation programme within a Senegalese oncology service. The study will produce evidence on the feasibility and potential value of prehabilitation in a resource-constrained environment. Should the intervention prove effective and feasible, recommendations will be made regarding its integration into standard pre-operative care pathways for colorectal cancer patients in comparable settings. prehabilitation, exercise therapy, colorectal cancer, surgical oncology, functional recovery, randomised controlled trial, Senegal. This protocol contributes to the field of African physiotherapy research by outlining a rigorous clinical trial designed to evaluate a context-specific prehabilitation intervention, addressing a notable evidence gap in peri-operative care for colorectal cancer in West Africa.

Keywords: *Prehabilitation, Colorectal cancer surgery, Functional recovery, Sub-Saharan Africa, Perioperative care, Exercise intervention, Surgical oncology*

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