

# Multimodal prehabilitation and early results of colorectal cancer treatment

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## Introduction

Colorectal cancer is one of the main cancer diseases in the adult population regardless of gender. Currently used treatment is based on surgical resection and chemotherapy, but postoperative complications occur in up to 50% patients and are associated with higher morbidity and mortality and increased health care expenses.

Traditional approaches focus on the post-operative period for rehabilitation and lifestyle changes. Multimodal prehabilitation is expected to improve patients' functional capacity and reduce postoperative complications

### Colorectal cancer mortality & risk

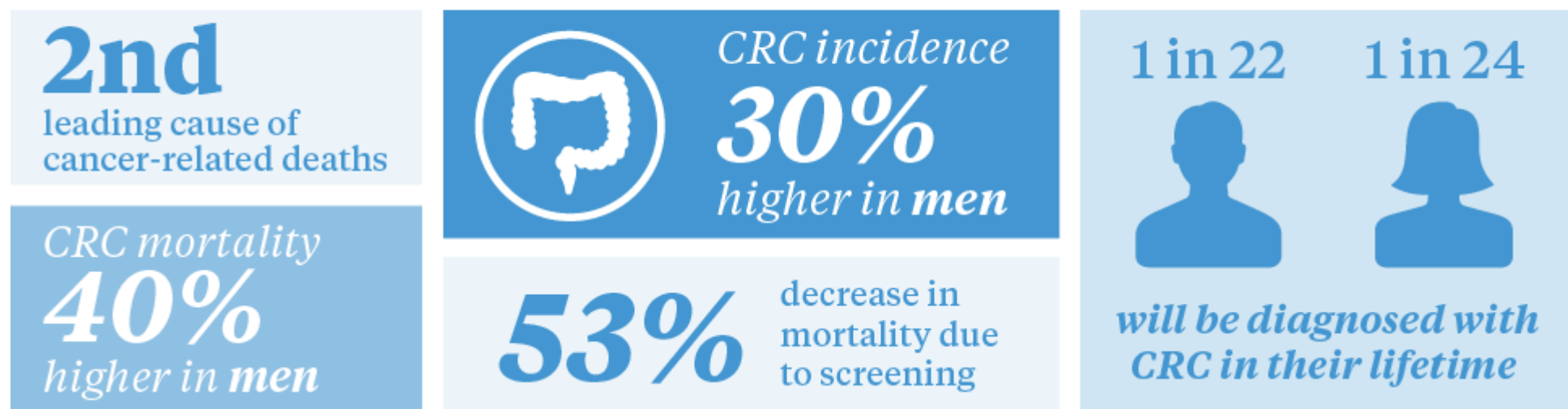


Figure 1. Colorectal cancer epidemiology characteristics.

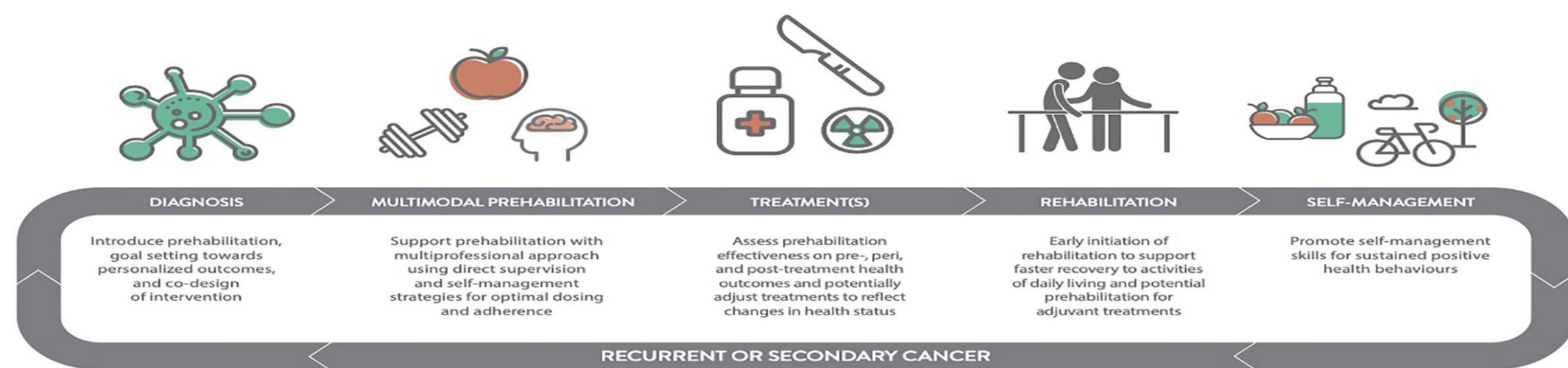


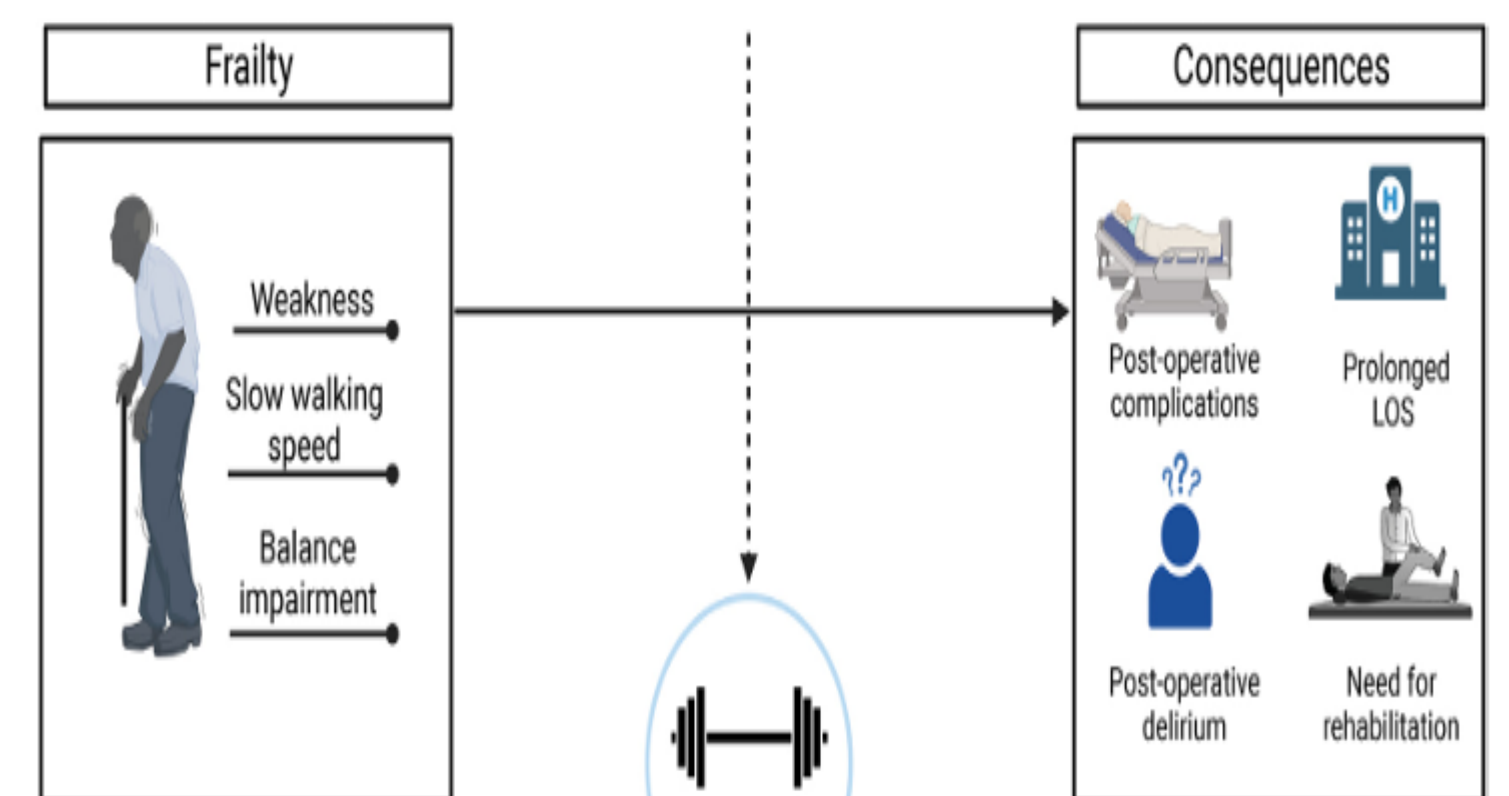
Figure 2. Prehabilitation scheme

### AIM AND RESEARCH HYPOTHESIS

The overall goal will be to investigate whether multimodal prehabilitation may improve postoperative outcomes and patients' functional capacity, nutritional status, satisfaction and cost-effectiveness for health care system.

## Methodology

The conduct of the described study is planned to obtain the approval of the Bioethics Committee of the Medical University of Łódź. Over the 24-month duration of the project, approximately 100 patients will be enrolled in the study group. Patients with colorectal cancer undergoing surgical treatment who provide written and informed consent to participate in the study will be included in the study. A detailed medical examination will be conducted for all patients enrolled in the project, according to the proposed case description form. The case description form has been designed and created to ensure the highest quality of collected data. It will include demographic data, disease characteristics and course, information on previous and current treatment, previous surgeries, and comorbidities. The form will be completed by the attending physician at the time of admission to the Clinic, and then at each visit during the observation period. The collected data will undergo detailed statistical analysis using the Statistica 13.0 program. The equipment used in the study is available and used daily in the Department of General and Oncological Surgery. The center will provide knowledge and additional equipment for the project. The applicant has extensive experience in using the methods contained in the application.



## What have we done?

The prospective study will be carried out at the Department of General and Oncological Surgery, Medical University of Łódź, an organizational unit of the Central Clinical Hospital of the Medical University of Łódź. The prehabilitation period is set for 4 weeks, a duration that, according to recent medical data, can lead to substantial improvements in physical function and a reduction in postoperative complications. Patients will be randomly assigned to one of two study groups. One group will undergo multimodal prehabilitation, while the control group will adhere to the standard pathway for surgical qualification. For this study, we have established collaborations with the dietary clinic of the CSK UM, which will devise individual nutritional interventions for the patients, as well as with a psychological clinic and specialist clinics, to optimally prepare the patient for the upcoming surgery. We have applied for a research grant from the Nutricia Foundation. We have also prepared a simple and understandable prehabilitation program for the patient based on the latest data, which we have included in the form of a short and understandable leaflet.

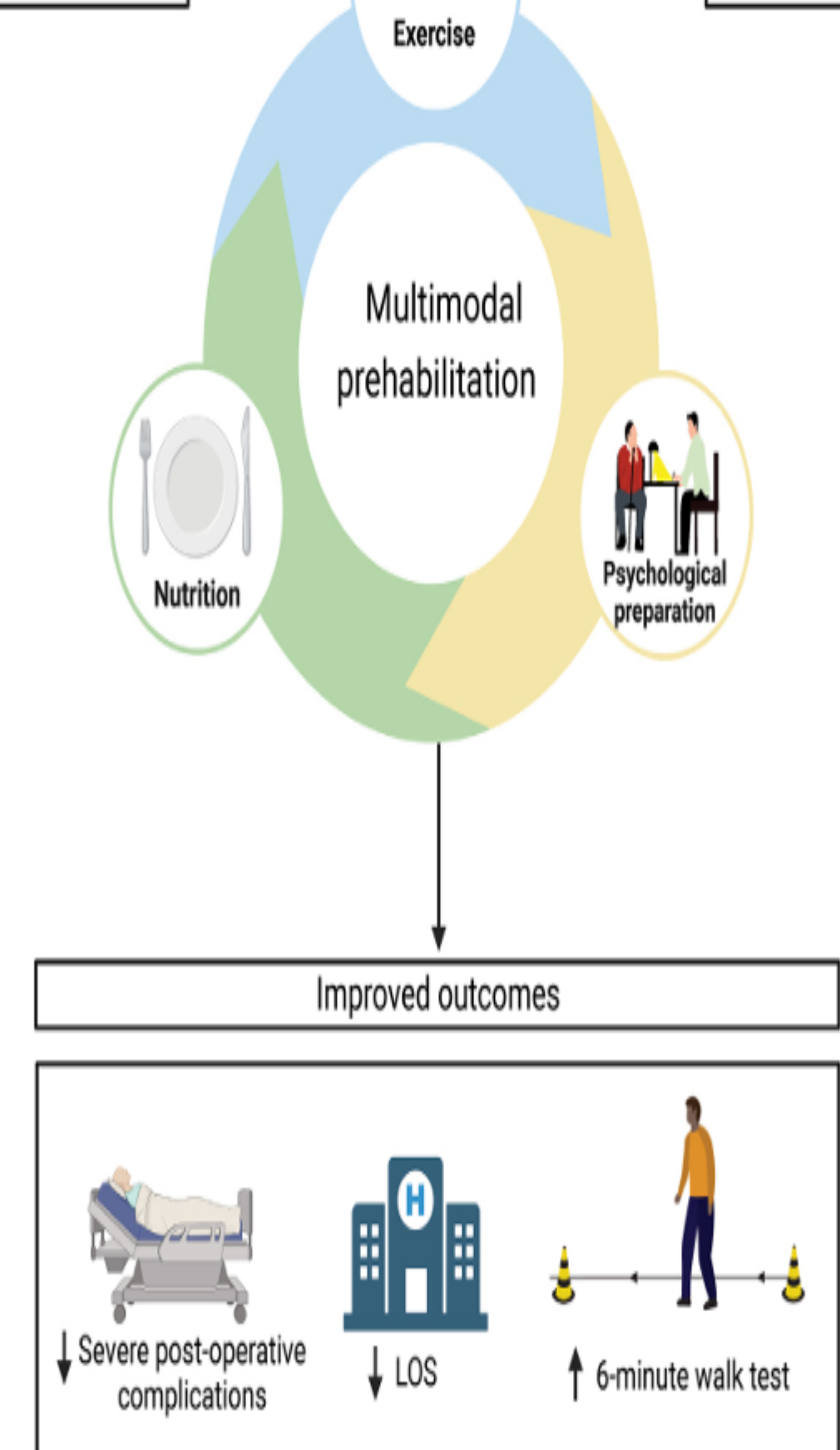


Figure 3. Prehabilitation application scheme.

### Benefits of prehabilitation

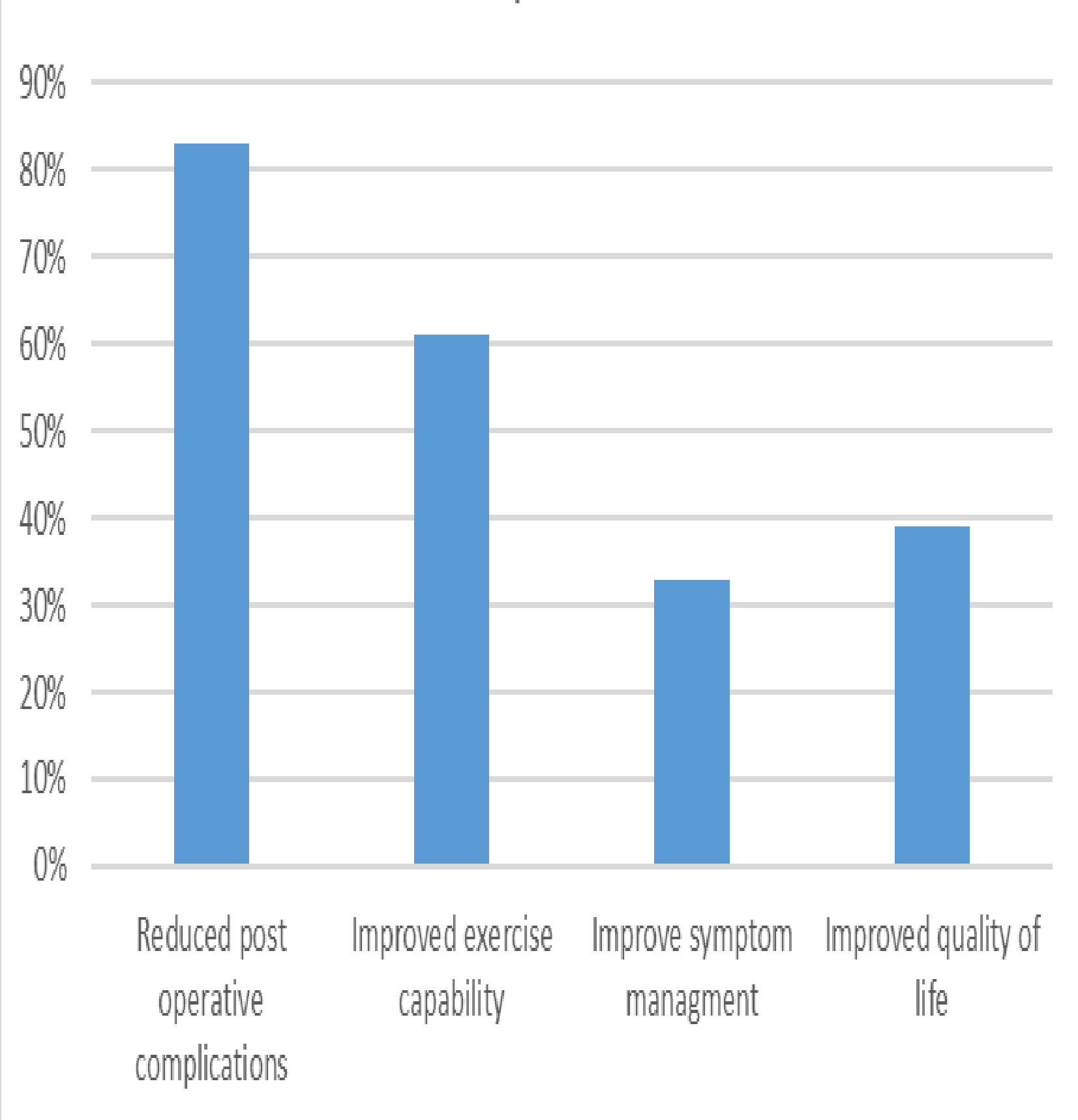


Figure 2. Benefits of prehabilitation according to the latest meta-analyses.

## What is new?

Investigations into the influence of prehabilitation on early outcomes of colorectal cancer treatment have the potential to reveal innovative strategies for optimizing surgical preparedness, augmenting recovery, and mitigating postoperative complications. By scrutinizing the efficacy of prehabilitation interventions, including physical activity, nutritional guidance, and psychological support, emerging research could shed light on bespoke approaches to enhance patient outcomes, curtail hospitalization duration, and boost the overall success of treatment. Such scholarly endeavors carry the potential to refine preoperative care protocols, thereby elevating the standard of colorectal cancer treatment. We are developing an original, clear and universal prehabilitation plan that can be easily implemented in every department and treatment clinic.