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ENHANCED RECOVERY AFTER COLORECTAL SURGERY: EVIDENCE-BASED PERIOPERATIVE STRATEGIES AND IMPLEMENTATION CHALLENGES

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Abstract: Background: Enhanced recovery after surgery (ERAS) pathways seek to reduce surgical stress and accelerate safe functional recovery after colorectal operations. Objective: To critically synthesize guideline-supported components, expected outcomes, and implementation barriers. Methods: A focused narrative review of publicly available international society guidance and selected peer-reviewed evidence was structured around preoperative, intraoperative, and postoperative care. No new patient records or original clinical experiments were used. Results: The reviewed literature supports multimodal analgesia, prevention of postoperative nausea, early mobilization and oral intake, judicious fluid management, and coordinated discharge planning. Benefits depend on pathway adherence, patient selection, and local resources; isolated interventions are unlikely to reproduce a full program's effect. Conclusion: ERAS should be understood as an audited multidisciplinary care system rather than a fixed checklist. Local prospective evaluation is warranted before attributing quantitative improvements to a new protocol.

Keywords: colorectal surgery; ERAS; perioperative care; postoperative recovery; clinical guidelines

1. Introduction

Colorectal operations are associated with tissue injury, inflammation, pain, transient bowel dysfunction and the possibility of postoperative complications. Conventional pathways often postpone oral intake, rely on opioid-heavy analgesia and emphasize prolonged bed rest. Enhanced recovery after surgery (ERAS) replaces these habits with a coordinated, evidence-informed program across the entire perioperative period [1,2]. Its aim is not simply an earlier discharge date: successful recovery requires restored function, acceptable symptom control, avoidance of preventable morbidity and informed patient participation.

International professional societies have published detailed recommendations for elective colon and rectal surgery, but implementing these recommendations consistently remains challenging. ERAS interventions interact with one another; an early feeding policy may fail without appropriate antiemetic prophylaxis and opioid-sparing pain control. The objective of this article is to assess principal ERAS components, identify limits of their supporting evidence and propose a pragmatic approach to implementation in surgical units with variable resources.

2. Materials and Methods

This article is a focused narrative review, not a systematic review or meta-analysis. The evidence base comprised the 2023 ASCRS/SAGES clinical practice guidelines for enhanced recovery after colon and rectal surgery, the ERAS Society guideline repository and CDC surgical-site infection guidance [1–4]. These references were selected for authority, clinical relevance and their explicit presentation of recommendations. They were read by phase of care and cross-mapped to patient outcomes and implementation requirements.

Information was grouped into five domains: preoperative preparation, anesthetic and intraoperative management, postoperative rehabilitation, complications and quality indicators, and implementation

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barriers. The synthesis is qualitative; no pooled effect size, new sample, statistical significance estimate or local hospital outcome is asserted. Since the source material is predominantly elective-colorectal, extrapolation to emergency operations, high-risk pediatric patients or other surgical specialties is expressly limited.

3. Results

Preoperative phase. Successful ERAS begins before hospital admission. Patients benefit from clear explanations of expected pain control, feeding, mobilization, potential stoma care and discharge criteria. Preoperative assessment should identify anemia, nutritional risk, frailty, comorbid disease and smoking status, enabling targeted optimization rather than uniform instructions. Contemporary guidelines also question routine prolonged fasting and favor individualized preparation compatible with anesthesia and aspiration-risk assessment [1,2].

Intraoperative phase. The reviewed recommendations emphasize minimally invasive access when clinically appropriate, standardized antimicrobial prophylaxis, active temperature management, multimodal opioid-sparing analgesia, prevention of nausea and vomiting, and balanced fluid administration. Each element targets a different pathway to delayed recovery. Excessive crystalloid administration may aggravate tissue edema, while over-restriction risks hypoperfusion; individualized hemodynamic judgment remains essential. Surgical technique, anastomotic safety and careful patient selection cannot be replaced by a recovery protocol [1,3].

Postoperative phase. Early oral intake, mobilization and functional recovery are central concepts. Patients should receive coordinated analgesia and antiemetic management so they can breathe deeply, get out of bed and tolerate nutrition. Routine tubes, drains and prolonged intravenous treatment require clear indications rather than being continued automatically. Discharge readiness must consider stable physiology, manageable pain, oral intake, mobility, patient understanding and an available plan for complications after leaving hospital [1,2].

Outcomes and interpretation. Published guidance presents ERAS as an evidence-based framework associated with improved recovery and potentially shorter stay in selected contexts [1]. However, individual studies vary in baseline practices, operation type, adherence and outcome definitions. A shorter admission alone cannot be assumed to represent better care unless readmission, infections, anastomotic complications and patient-reported recovery are also assessed. Avoiding invented pooled percentages is particularly important when the present work does not conduct a quantitative evidence synthesis.

Quality measurement. A practical unit-level dashboard may record completion of preoperative counselling, adherence to prophylaxis and temperature management, postoperative day of first mobilization, tolerance of feeding, opioid exposure, length of stay, 30-day readmission and documented complications. These are proposed audit variables, not measurements collected for this article. A process measure can reveal why an outcome has or has not improved, particularly when multiple wards participate in care.

4. Discussion

The dominant finding of this synthesis is that ERAS functions as an interdependent system. A surgical department may introduce a well-designed pathway yet see little benefit if nurses are not empowered to mobilize patients, anesthetic protocols remain unchanged or discharge instructions are poorly communicated. Therefore, the implementation unit should be a multidisciplinary team involving surgeons, anesthetists, nursing staff, dietitians, physiotherapists and quality officers [1,2].

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Contextual adaptation is necessary. Low-resource institutions may lack specialized devices, dedicated dietitians or continuous electronic audit systems. Nevertheless, relatively accessible changes—patient education, structured postoperative rounds, opioid-sparing prescribing and explicit mobilization targets—may be feasible. The tradeoff is that adherence should not be reported as clinical success without measuring patient outcomes. Complex or frail patients may require individualized departures from standard milestones.

An additional limitation concerns prevention of surgical-site infection. Standardized antibiotic prophylaxis and infection-prevention bundles are complementary to ERAS, not substitutes for sterile technique and microbiology-based local policies [3,4]. Programs must monitor potential unintended effects, including premature discharge or insufficient support for patients with postoperative complications. The reviewed sources do not establish the effect size for a particular hospital; prospective observational audits or pragmatic comparative studies are appropriate next steps.

This review has methodological limitations. It is based on selected authoritative sources rather than a reproducible exhaustive database search; publication bias, heterogeneity and study-level certainty were not independently quantified. For this reason, statements are phrased as a qualitative evidence synthesis and not as new effectiveness estimates.

5. Conclusion

Enhanced recovery in colorectal surgery integrates patient preparation, careful intraoperative management and active postoperative rehabilitation. Its likely value lies in reliable coordination and consistent execution of multiple evidence-based practices. Hospitals introducing ERAS should define patient-centered outcomes, audit adherence and monitor adverse events alongside hospital stay. Further locally conducted research is required to measure effectiveness and equity of access under specific clinical and resource conditions.

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