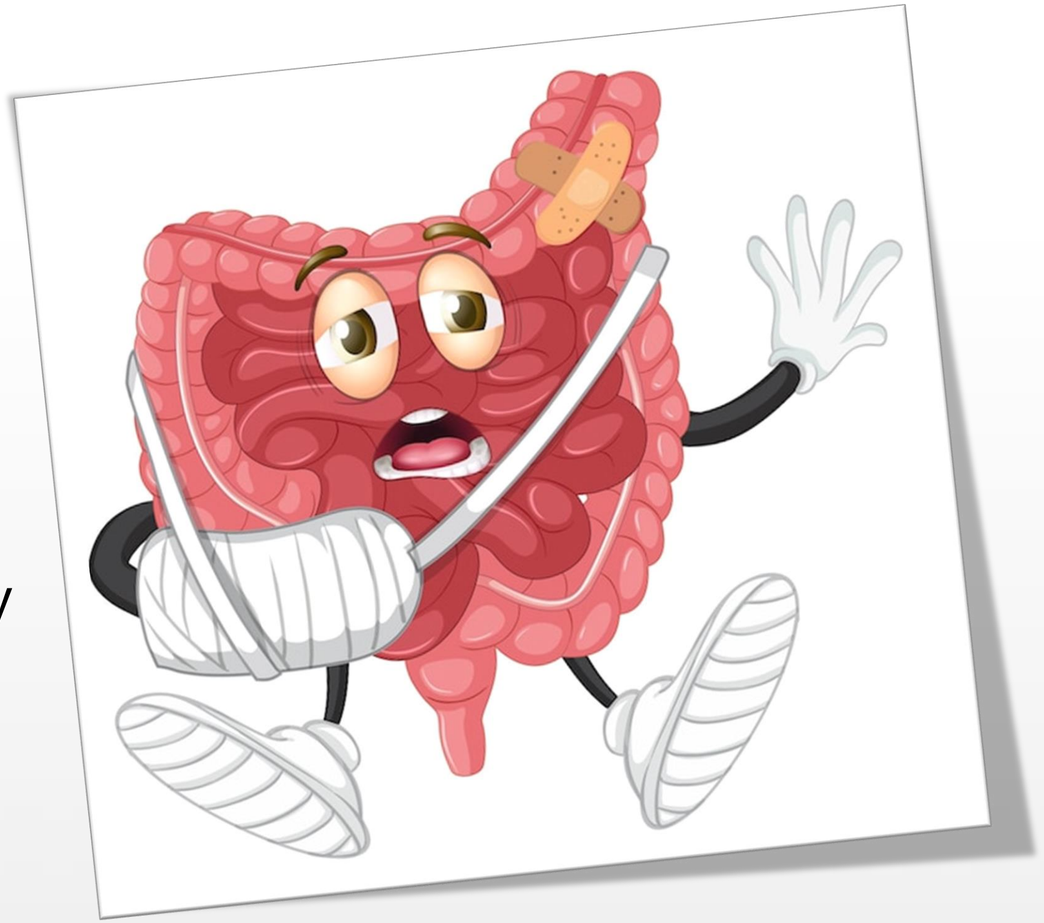
ERAS in Emergency Colorectal Surgery : Does it work



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Enhanced recovery after surgery (ERAS)

- Enhanced recovery after surgery (ERAS), as a multidisciplinary program designed to minimize stress response to surgery and promote the recovery of organ function, has become a standard of perioperative care for elective colorectal surgery.

Greer NL, et al, Dahm Dis Colon Rectum 2018

Enhanced recovery after surgery (ERAS)

- In an elective setting, ERAS program has consistently been shown to decrease postoperative complication, reduce length of hospital stay, shorten convalescence, and lower healthcare cost.

Greer NL, et al, Dahm Dis Colon Rectum 2018

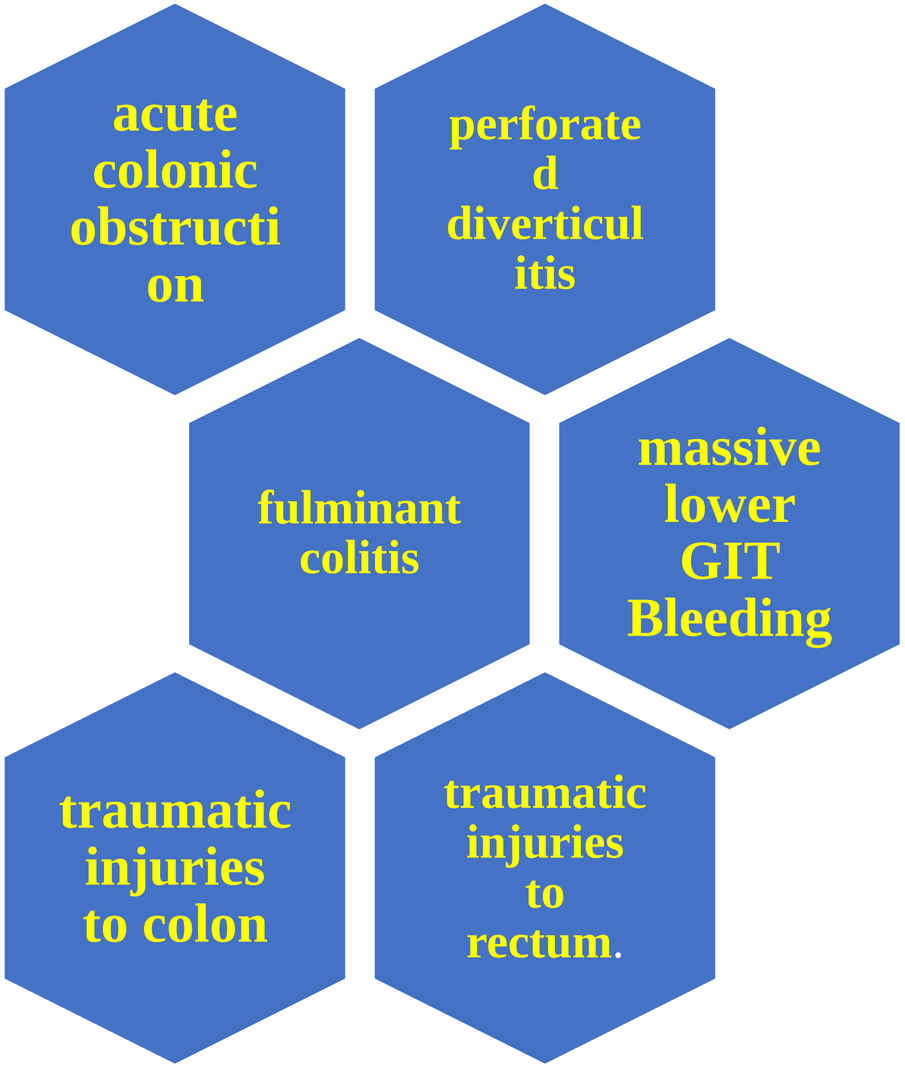
Enhanced recovery after surgery (ERAS)

- On the other hand, Recently, there is an emerging evidence that ERAS program can be safely and effectively applied to patients with emergency colorectal conditions such as acute colonic obstruction and intraabdominal infection.

Greer NL, et al, Dahm Dis Colon Rectum 2018

Why ERAS in Emergency Colorectal Surgery?

- in daily practice, it is estimated that up to 30% of colorectal operations are related to emergency conditions such as:



Bayar B, Terkish journal of surgery, 2015

Why ERAS in Emergency Colorectal Surgery?

- So, patients having emergency colorectal conditions could be high-risk individuals and undergo more complex operations such as multi-visceral resections which have higher morbidity & mortality

Lohsiriwat V, World J Gastroenterol 2014

Why ERAS in Emergency Colorectal Surgery?

- Recently, some studies have found that ERAS protocol may be feasible when adapted properly in emergency conditions.
- At this moment these questions may com to your mind:

Lohsiriwat V, World J Gastroenterol 2014

Why ERAS in Emergency Colorectal Surgery?

- At this moment these questions may come to your mind:

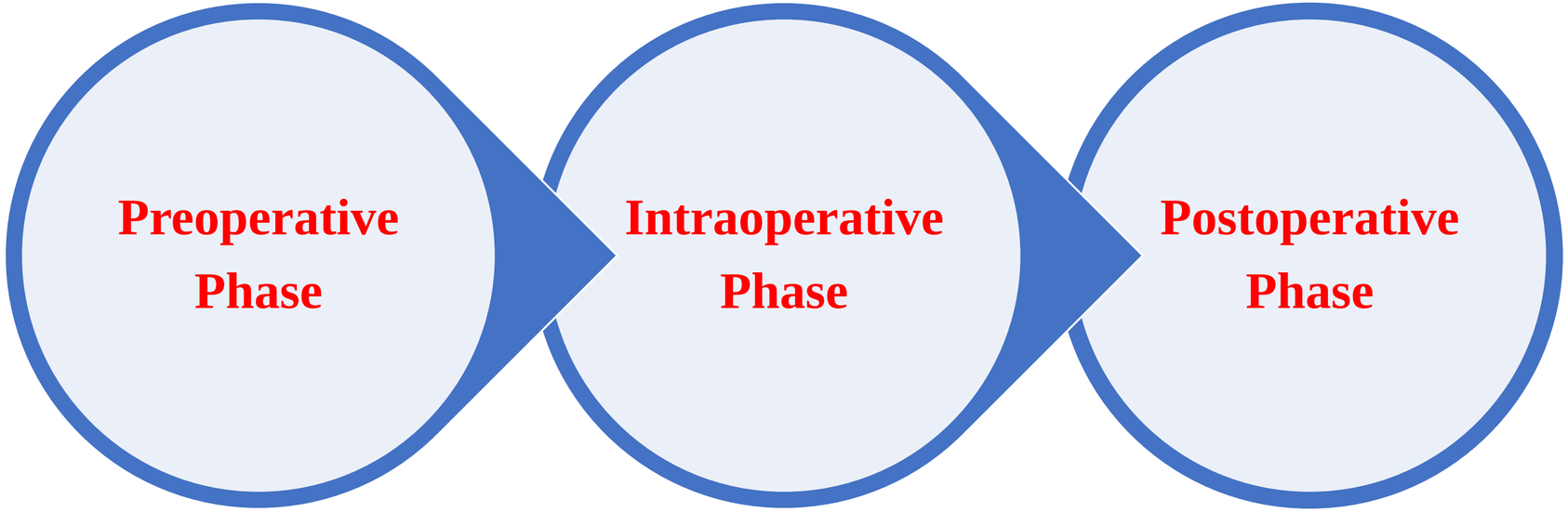
- Can the principles of ERAS be applied to high-stress emergency surgical scenarios?

- Would patients benefit from this integrated care route in terms of faster healing and fewer challenges?

- Which specific ERAS procedures are most useful while doing emergency surgery, if any?

ERAS Components:

- ERAS protocol for emergency and elective surgeries has the same components:



ERAS Components: Preoperative

🧠 ERAS Preoperative Phase: Elective vs Emergency Colorectal Surgery

Component	Elective Surgery	Emergency Surgery
Preadmission Counseling	✅ Standardized education, expectation setting, smoking/ alcohol cessation	❌ Usually not feasible due to time constraints
Nutritional Optimization	✅ Preoperative nutritional screening, immunonutrition, carbohydrate loading	⚠️ Often skipped or limited; malnutrition may be present but not modifiable acutely
Bowel Preparation	✅ Selective or no bowel prep depending on procedure	❌ Typically avoided due to risk of worsening dehydration or perforation
Thrombopro phylaxis	✅ Risk stratification and prophylaxis initiated pre-op	✅ Still applied, but often empirically without full risk stratification

ERAS Components: Preoperative

ERAS Preoperative Phase: Elective vs Emergency Colorectal Surgery

Component	Elective Surgery	Emergency Surgery
Antibiotic Prophylaxis	✅ Timed administration within 60 minutes before incision	✅ Administered urgently, often broader-spectrum due to sepsis or contamination
Preoperative Fasting	✅ No prolonged fasting; clear fluids up to 2 hours before surgery	❌ Patients often arrive fasting or with ileus; fasting protocols not applicable
Premedication Avoidance	✅ Avoid sedatives to reduce delirium and promote early mobilization	⚠️ May be used selectively for agitation or pain; less protocolized
Fluid Management	✅ Goal-directed therapy based on hemodynamic monitoring	⚠️ Often reactive rather than goal-directed; resuscitation prioritized over precision
Pain Management Planning	✅ Multimodal analgesia planned pre-op	⚠️ Often deferred to intra/post-op phase due to urgency

ERAS Components: Preoperative

Key Differences

Time & Stability: Elective ERAS relies on stable patients with time for optimization. Emergency cases often involve unstable physiology, sepsis, or obstruction, limiting protocol adherence.

Customization: Emergency ERAS requires **adaptive implementation**—prioritizing feasible elements like early antibiotics, thromboprophylaxis, and avoiding unnecessary premedication.

Multidisciplinary Coordination: In emergencies, ERAS success hinges on rapid coordination between surgery, anesthesia, and critical care teams to salvage what's possible from the protocol.

ERAS Components: Intraoperative

ERAS Intraoperative Phase: Elective vs Emergency Colorectal Surgery

Component	Elective Surgery	Emergency Surgery
Minimally Invasive Approach	✅ Laparoscopy preferred for reduced trauma and faster recovery	⚠️ Often limited by patient instability, contamination, or lack of prep
Normothermia Maintenance	✅ Active warming devices used throughout	✅ Still prioritized; hypothermia worsens outcomes even in emergencies
Goal-Directed Fluid Therapy	✅ Based on dynamic parameters (SVV, CO, etc.)	⚠️ Often replaced by reactive resuscitation; GDFT may be impractical in shock/sepsis
Multimodal Analgesia	✅ Regional blocks, NSAIDs, acetaminophen, local infiltration	⚠️ Often simplified; regional techniques may be skipped due to urgency or coagulopathy

ERAS Components: Intraoperative

ERAS Intraoperative Phase: Elective vs Emergency Colorectal Surgery

Component	Elective Surgery	Emergency Surgery
Avoidance of Drains	✅ Selective use based on evidence	❌ Drains often placed due to contamination, perforation, or uncertainty
Avoidance of Nasogastric Tubes	✅ Generally avoided	❌ Frequently used in obstruction, ileus, or contamination
Antibiotic Redosing	✅ Timed redosing based on duration and blood loss	✅ Still applied; often broader-spectrum and empiric
Blood Conservation	✅ Restrictive transfusion strategy	⚠️ May be liberal in hemorrhage or sepsis
Urinary Catheter Use	✅ Avoided or removed early	⚠️ Often retained longer due to hemodynamic monitoring needs

ERAS Components: Intraoperative

Key Differences

•**Physiologic instability** in emergency cases often overrides protocol purity. For example, **laparoscopy** may be unsafe in peritonitis or shock, and **fluid therapy** shifts from precision to life-saving volume resuscitation.

•**Contamination and uncertainty** drive more conservative choices — drains, NG tubes, and broader antibiotics are used more liberally.

•**Multimodal analgesia** may be simplified or delayed, especially if regional blocks are contraindicated.

ERAS Components: Postoperative

ERAS Postoperative Phase: Elective vs Emergency Colorectal Surgery

Component	Elective Surgery	Emergency Surgery
Early Mobilization	✅ Within 6–24 hours post-op; structured ambulation plans	⚠️ Often delayed due to instability, pain, or ICU admission
Early Oral Intake	✅ Clear fluids POD0, solids POD1 if tolerated	⚠️ Delayed in ileus, sepsis, or bowel manipulation; often NPO initially
Multimodal Analgesia	✅ NSAIDs, acetaminophen, local blocks; minimal opioids	⚠️ Opioids may be necessary due to pain severity or lack of regional options
PONV Prophylaxis	✅ Standard antiemetic protocols	✅ Still applied; may be intensified due to higher opioid use
Urinary Catheter Removal	✅ POD1 or earlier	⚠️ Often prolonged due to hemodynamic monitoring or mobility limitations

ERAS Components: Postoperative

ERAS Postoperative Phase: Elective vs Emergency Colorectal Surgery

Component	Elective Surgery	Emergency Surgery
Drain Removal	✅ Early removal if output low	❌ Often retained longer due to contamination or uncertainty
Glycemic Control	✅ Monitored closely, especially in diabetics	✅ Still important; stress hyperglycemia common in emergencies
Thromboprophyl axis Continuation	✅ Continued until discharge or longer if high risk	✅ Same, though risk may be higher due to immobility
Discharge Planning	✅ Begins early; criteria-based	⚠️ Often delayed due to complications, slower recovery, or social factors

ERAS Components: Postoperative

Key Differences

•**Recovery trajectory** in emergency cases is less predictable. Ileus, infection, and organ dysfunction often delay milestones like oral intake and mobilization.

•**Pain and sedation** may be harder to control without compromising recovery goals.

•**Catheters and drains** are more likely to stay in longer, increasing risk of infection and immobility.

Clinical Insights

- Even partial implementation of ERAS in emergency colorectal surgery can improve outcomes like reduced complications and shorter hospital stays.

- The adherence to intraoperative ERAS principles — like maintaining normothermia, minimizing opioids, and avoiding unnecessary tubes — can improve outcomes in emergency colorectal surgery. The key is adaptive implementation, balancing evidence with real-time judgment.

Take Home messages

1.ERAS principles remain relevant in emergencies, but must be adapted to the clinical context. Full protocol adherence is often impractical

2.Preoperative optimization is limited by time and patient instability. Nutritional support, bowel preparation, and patient education are often omitted, but early antibiotic administration and thromboprophylaxis remain essential

3.Intraoperative ERAS elements require clinical judgment.

Take Home messages

4. Postoperative recovery is slower and less predictable. Nonetheless, multimodal analgesia, glycemic control, and thromboprophylaxis should be maintained to reduce complications.

5.Adaptive ERAS improves outcomes even in emergencies.

6.Multidisciplinary coordination is critical. Surgeons, anesthesiologists, and nursing teams must collaborate dynamically to tailor ERAS principles to each patient's condition, balancing evidence with clinical reality.

7.Documentation and audit of ERAS elements in emergency settings can help refine protocols, identify barriers, and support quality improvement initiatives in acute surgical care.

Thank You