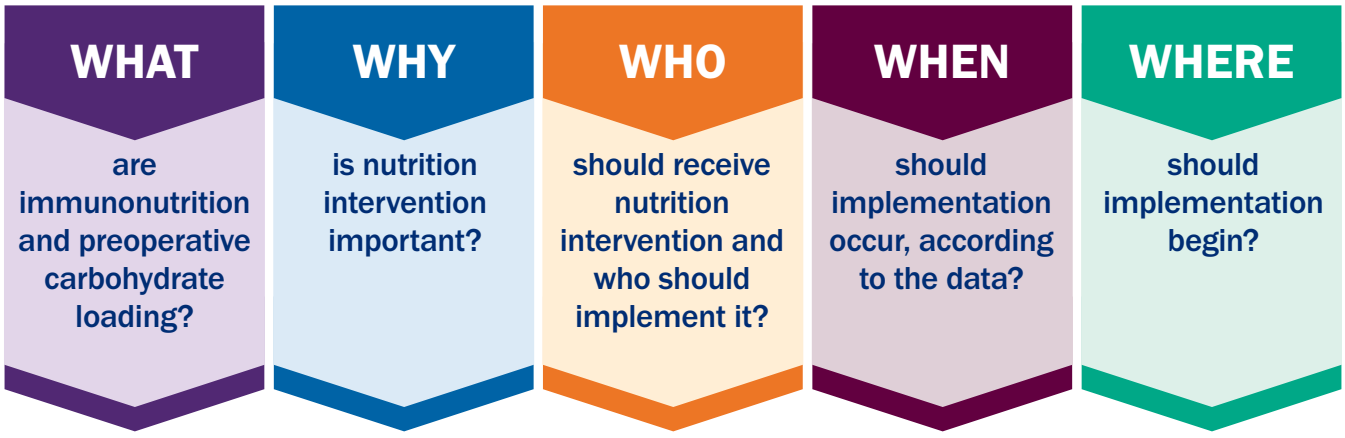
Nutrition Intervention in Enhanced Recovery After Surgery Pathway Improves Outcomes: Fact Sheet

Enhanced Recovery after Surgery (ERAS) is a multimodal, evidence-based perioperative care pathway developed to improve recovery for patients undergoing major surgery. ERAS elements address key factors that have historically extended a patient's hospital stay such as need for parenteral analgesia and fluids, lack of mobility, and postoperative complications. Implementing ERAS protocols leads to better patient outcomes, shorter hospital stay, fewer complications, and improved teamwork. (ERAS®USA https://erasusa.org/about/)

An important component of the ERAS pathway is perioperative **nutrition, especially addressing malnutrition.** Malnutrition is among the few modifiable preoperative risk factors associated with poor surgical outcomes. Perioperative nutrition has been shown to improve surgical outcomes including infectious complications and hospital length of stay. Surgical mortality has also been decreased with appropriate nutrition support therapy.[1-3]

This fact sheet provides a better understanding to the 5 Ws of Nutrition Intervention for ERAS. Hang on your unit and share with your colleagues.

THE 5 Ws OF NUTRITION INTERVENTION IN ERAS PATHWAYS



Continued ▶

Content supported by Abbott Nutrition

Abbott

aspen LEADING THE SCIENCE AND PRACTICE OF CLINICAL NUTRITION
American Society for Parenteral and Enteral Nutrition

WHAT are immunonutrition and preoperative carbohydrate loading?

Carbohydrate loading is drinking clear carbohydrate beverage up to 2 hours before surgery. This decreases the surgical stress response and postoperative insulin resistance as well as improves patient satisfaction and well-being. These beverages are clear liquid maltodextrin-based drinks. It is recommended that a preoperative carbohydrate drink containing at least 45 grams of complex carbohydrate be consumed. There is growing evidence that this drink is safe for patients with Type 2 diabetes but should be avoided in those with Type 1 diabetes.[1,4-6]

Immunonutrition (IMN) is a nutrition therapy for surgical patients where high protein, arginine, omega-3 fatty acid, and antioxidants are delivered in combination in various tube feeding and ONS formulas. Those at nutrition risk before major surgery should receive preoperative oral nutrition supplements which can be immunonutrition formulas for at least 7 days.[1]

WHY is nutrition intervention important?

Perioperative nutrition invention including optimization of nutritional status, preoperative carbohydrate loading, IMN, and early postoperative enteral or oral nutrition as part of the ERAS program has been shown to:

- Improve perioperative outcomes in GI oncologic surgery where the greatest risk of baseline malnutrition occurs.[3]
- Improve surgical outcomes and reduce infectious morbidity and mortality.
- Maintain nutrition status during the catabolic period.[1]
- Decrease length of stay in those undergoing colorectal cancer.[2]

These therapies help turn on anabolic processes, restore glycogen, and halt protein catabolism.[4]

WHO should receive nutrition intervention and who should implement it?

The patients who have been shown to benefit from perioperative nutrition invention including carbohydrate loading, IMN, and/or ONS are patients at risk of malnutrition who are undergoing general and colorectal surgery, cardiac surgery, GI oncologic surgery, orthopedic surgery (total knee/hip replacement), gynecological surgery, and breast reconstruction surgery. These recommendations are based on guidelines developed by the Perioperative Quality Initiative Workgroup of the American Society for Enhanced Recovery (ASER POQI).[1] The perioperative team of anesthesiologists, nurses, surgeons, dietitians, advance practice providers, ERAS coordinators, and others champion this process which includes perioperative nutrition assessment and intervention.

Continued ▶

Content supported by Abbott Nutrition

Abbott

aspen LEADING THE SCIENCE AND PRACTICE OF CLINICAL NUTRITION
American Society for Parenteral and Enteral Nutrition

WHEN should implementation occur, according to the data?

As per ASER POQI Consensus guidelines, for those at low nutrition risk, take oral IMN 5 days preoperatively and for 7 days postoperatively. Those at high nutrition risk may need 4 weeks of preoperative rehabilitation and then once ready for surgery, will drink oral immunonutrition for 7 days postoperatively as able. For all patients, consume the carbohydrate beverage up to 2 hours prior to surgery.[7]

WHERE should implementation begin?

ERAS and perioperative nutrition programs are initiated and implemented by multi-disciplinary teams in the preoperative setting such as provider offices, clinics, or in the acute care setting. These teams should take the following steps as recommended by ASER POQI Consensus guidelines:[1]

Before surgery:

- Conduct a preoperative nutrition screening
- Set a goal of delivering more than 1.2 grams per kilogram per day of protein
- Patients who are screened at nutritional risk should receive preoperative oral nutrition supplements for at least 7 days using either IMN formulas (containing arginine and fish oil) or high-protein ONS (2–3x a day, minimum of 18 g protein/dose)
- If unable to consume this orally, consider placement of an enteral feeding tube and initiate enteral nutrition
- All patients undergoing elective major abdominal surgery should consider preoperative IMN.
- All patients should drink 8-10 ounces of clear carbohydrate beverage up to 2 hours before surgery.

After surgery:

- Begin high protein oral diet unless contraindicated
- Reaching overall protein goal is more important than total calorie goal
- IMN should be considered for major abdominal surgery for 7 days postoperative
- Begin early tube feeding in patients not able to meet at least 50% of needs orally
- Continue post hospital discharge use of high protein oral nutrition

Visit nutritioncare.org/maw for for more resources.

References

1. Wischmeyer PE, Carli F, Evans DC, et al. American Society for Enhanced Recovery and Perioperative Quality Initiative joint consensus statement on nutrition screening and therapy within a surgical enhanced recovery pathway. *Anesth Analg.* 2018;126:1883-95.
2. Martin L, Gillis C, Atkins M, et al. Implementation of an enhanced recovery after surgery program can change nutrition care practice: a multicenter experience in elective colorectal surgery. *JPEN J Parenter Enteral Nutr.* 2019;43(2):206-219.
3. Bozzetti F, Gianotti L, Braga M, et al. Postoperative complications in gastrointestinal cancer patients: the joint role of the nutritional status and the nutritional support. *Clin Nutr.* 2007;26:698-709
4. Ackerman RS, Tufts CW, DePinto DG, et al. How sweet is this? a review and evaluation of preoperative carbohydrate loading in the enhanced recovery after surgery model. *Nutr Clin Pract.* 2020;35(2):246-253.
5. Bilku DK, Dennison AR, Hall TC, et al. Role of preoperative carbohydrate loading: a systematic review. *Ann R Coll Surg Engl.* 2014;96(1):15-22.
6. Cua S, Humeidan M, Beal EW, et al. The effect of an enhanced recovery protocol on colorectal surgery patients with diabetes. *J Surg Res.* 2021;257:153-160.
7. Williams DGA, Villalta E, Aronson S, et al. Tutorial: development and implementation of a multidisciplinary preoperative nutrition optimization clinic. *JPEN J Parenter Enteral Nutr.* 2020 Mar 31. doi: 10.1002/jpen.1824.

Content supported by Abbott Nutrition

Abbott

aspen LEADING THE SCIENCE AND PRACTICE OF CLINICAL NUTRITION
American Society for Parenteral and Enteral Nutrition