

Preoperative Carbohydrate Loading: Recommendations From Professional Societies

ENHANCED RECOVERY AFTER SURGERY (ERAS®) GUIDELINES FOR COLORECTAL SURGERY

“Patients should be allowed to take clear fluids including carbohydrate drinks, up until 2 hours before initiation of anesthesia.”¹

EUROPEAN SOCIETY FOR CLINICAL NUTRITION AND METABOLISM (ESPEN) GUIDELINE: CLINICAL NUTRITION IN SURGERY

“Preoperative carbohydrate loading (instead of overnight fasting) the night before and two hours before surgery should be administered. Preoperative carbohydrates can be considered in patients undergoing major surgery.”²

AMERICAN SOCIETY FOR ENHANCED RECOVERY (ASER) AND PERIOPERATIVE QUALITY INITIATIVE (POQI) JOINT CONSENSUS STATEMENT

“We recommend a preoperative carbohydrate drink containing at least 45 g of carbohydrate to improve insulin sensitivity (except in type 1 diabetics due to their insulin deficiency state). We suggest that complex carbohydrate (e.g., maltodextrin) be used when available.”³

AMERICAN SOCIETY OF ANESTHESIOLOGISTS (ASA) PRACTICE GUIDELINES

“Clear liquids may be ingested for up to 2 h before procedures requiring general anesthesia, regional anesthesia, or procedural sedation and analgesia. Examples of clear liquids include, but are not limited to, water, and fruit juices without pulp, carbonated beverages, carbohydrate-rich nutritional drinks, clear tea, and black coffee.”⁴

Based on a review by Buijs et al., at least 48 g of carbohydrates are needed to overcome the fasted state.⁵

	ENSURE® PRE-SURGERY	LEADING SPORTS DRINK*	100% APPLE JUICE*	CLEAR FAST®†	GLYCEMIC ENDOTHELIAL DRINK (G.E.D.)‡	WATER*	COMMENTS
Serving Size	296 mL (10 fl oz)	355 mL (12 fl oz)	296 mL (10 fl oz)	355 mL (12 fl oz)	355 mL (12 fl oz as prepared) [§]	296 mL (10 fl oz)	
Carbohydrate, g	50	21	36	50	27	0	A patient would need to consume over 24 fl oz of the leading sports drink at a time in order to get the recommended amount of carbohydrate. ⁵
% Carbohydrate (of total volume)	17%	6%	12%	14%	8%	0%	Ensure Pre-Surgery contains 50 g carbohydrate. Data show that ingestion of a 50 g carbohydrate drink preoperatively reduces postoperative nausea and vomiting ^{6,7} and postoperative insulin resistance. ⁸
Carbohydrate Sources	Maltodextrin, Fructose	Sugar, Dextrose	Fructose, Sucrose, Glucose	Maltodextrin	Maltodextrin, Sucrose	N/A	Ensure Pre-Surgery contains maltodextrin as recommended by ASER. ³
Sugar, g	6	21	33	5	2	0	Ensure Pre-Surgery has less sugar per serving than sports drinks and apple juice.
Sodium, mg	180	160	30	188	45	7	

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ASA is a trademark of the American Society of Anesthesiologists. This product has not been reviewed or endorsed by ASA.

* Nutritional content obtained from the US Department of Agriculture Food Composition Database. <https://ndb.nal.usda.gov/ndb/>. Accessed August 21, 2019.

† ClearFast is not a registered trademark of Abbott Laboratories. Nutrition information obtained from ClearFast. Available at <https://drinkclearfast.com/our-products/>. Accessed date: 17 July 2019

‡ G.E.D. is not a registered trademark of Abbott Laboratories. Nutrition information obtained from SOF Health. Available at <https://sofhealth.com/products/glycemic-endothelial-drink-ged/>. Accessed date: 17 July 2019

§ One serving is provided by mixing one 1.2 oz packet with 355 mL (12 fl oz) of water.

Ensure® Pre-Surgery Clear Carbohydrate Drink

PREOPERATIVE CARBOHYDRATE LOADING



2 bottles
night before surgery,
before bedtime
within fasting window

1 bottle
up until 2 hours
before surgery

Use under medical supervision

- Specially designed to help reduce insulin resistance after surgery and improve patient outcomes
- Contains complex carbohydrate in the form of maltodextrin compared to sports drinks, which contain simple sugars
 - 50 g carbohydrates
 - Antioxidants: zinc and selenium
 - 200 calories

Product	List Number	NDC Format Codes*	Packaging
Ensure® Pre-Surgery 10 fl oz re-closable containers	65044 66437	70074-0650-46 70074-0664-36	12/case 16/case (4 - 4 packs)

Meets ERAS guidelines for preoperative use of a clear carbohydrate beverage¹

Meets American Society of Anesthesiologists (ASA®) guidelines for use with preoperative fasting⁴

PREOPERATIVE CLEAR CARBOHYDRATE DRINKS ARE ASSOCIATED WITH IMPROVED PATIENT OUTCOMES INCLUDING:†



Reduced preoperative hunger, thirst, and anxiousness^{9,10}

Reduced postoperative insulin resistance⁸

Reduced postoperative nausea and vomiting^{6,7}

Reduced hospital length of stay¹¹

References: **1.** Gustafsson UO, et al. *World J Surg.* 2019;43(3):659-695. **2.** Weimann A, et al. *Clin Nutr.* 2017;36(3):623-650. **3.** Wischmeyer PE, et al. *Anesth Analg.* 2018;126(6):1883-1895. **4.** American Society of Anesthesiologists. *Anesthesiology.* 2017;126(3):376-393. **5.** Buijls N, et al. *Proc Nutr Soc.* 2013;72(3):277-287. **6.** Hausel J, et al. *Br J Surg.* 2005;92(4):415-421. **7.** Singh BN, et al. *Surg Endosc.* 2015;29(11):3267-3272. **8.** Wang ZG, et al. *Br J Surg.* 2010;97(3):317-327. **9.** Canbay Ö, et al. *Int Urol Nephrol.* 2014;46(7): 1329-1333. **10.** Hausel J, et al. *Anesth Analg.* 2001;93(5):1344-1350. **11.** Ljungqvist O, et al. *Clin Nutr.* 2001;20(Supplement 1):167-171.

* Abbott Nutrition does not represent these codes to be actual National Drug Codes (NDCs). NDC-format codes are product codes adjusted according to standard industry practice to meet the format requirement of pharmacy and health insurance computer systems.

† Studies conducted using formulas containing similar nutrients as Ensure Pre-Surgery.