**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.”

**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.”

**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.”

**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.”

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

<table>
<thead>
<tr>
<th>Serving Size</th>
<th>ENSURE® PRE-SURGERY</th>
<th>LEADING SPORTS DRINK*</th>
<th>100% APPLE JUICE*</th>
<th>CLEAR FAST®</th>
<th>GLYCEMIC ENDOTHELIAL DRINK (G.E.D.)</th>
<th>WATER*</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>296 mL (10 fl oz)</td>
<td>296 mL (10 fl oz)</td>
<td>296 mL (10 fl oz)</td>
<td>355 mL (12 fl oz)</td>
<td>355 mL (12 fl oz as prepared)§</td>
<td>296 mL (10 fl oz)</td>
<td>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.†</td>
<td></td>
</tr>
<tr>
<td>Carbohydrate, g</td>
<td>50</td>
<td>21</td>
<td>36</td>
<td>50</td>
<td>27</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>% Carbohydrate (of total volume)</td>
<td>17%</td>
<td>6%</td>
<td>12%</td>
<td>14%</td>
<td>8%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Carbohydrate Sources</td>
<td>Maltodextrin, Fructose</td>
<td>Sugar, Dextrose</td>
<td>Fructose, Sucrose, Glucose</td>
<td>Maltodextrin</td>
<td>Maltodextrin, Sucrose</td>
<td>N/A</td>
<td>Ensure Pre-Surgery contains 50 g carbohydrate. Data show that ingestion of a 50 g carbohydrate drink preoperatively reduces postoperative nausea and vomiting67 and postoperative insulin resistance.8</td>
</tr>
<tr>
<td>Sugar, g</td>
<td>6</td>
<td>21</td>
<td>21</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>Ensure Pre-Surgery has less sugar per serving than sports drinks and apple juice.</td>
</tr>
<tr>
<td>Sodium, mg</td>
<td>180</td>
<td>160</td>
<td>30</td>
<td>188</td>
<td>45</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

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ASER is a trademark of the American Society for Enhanced Recovery. This product has not been reviewed or endorsed by ASER.

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

§ 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 CARBOHYDRATELOADING

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

2 bottles
night before surgery,
before bedtime
within fasting window

1 bottle
up until 2 hours
before surgery

Use under medical supervision

Meets ERAS guidelines for preoperative use of a clear carbohydrate beverage†
Meets American Society of Anesthesiologists (ASA®) guidelines for use with preoperative fasting§

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

- Reduced preoperative hunger, thirst, and anxiousness³⁰
- Reduced postoperative insulin resistance⁸
- Reduced postoperative nausea and vomiting⁶,⁷
- Reduced hospital length of stay¹¹


* 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.

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