Preoperative preparation in ERAS

- 1. preoperative patient education
- 2. clear liquids up to 2 hrs prior to surgery
- 3. carbohydrate loading drink 2 hrs prior to surgery
- 4. mechanical bowel prep with oral antibiotics
- 5. non-narcotic pain management
- 6. Entereg
- 7. limited IV fluids
- 8. using order sets for standardized care

Continued oral intake

- >90% of 750 ml bolus of an isotonic fluid empties from the stomach within 20-30 min in the majority of pts (Gastroenterology, 1965; 49:375-80).
- Univ. Calgary study used po dye and water intake consumed 120-180 min prior to anesthesia, then checked gastric aspirate with NGT 10 min into general anesthesia (Anesth Analg 1986; 65:1112-4).
  - Decreased gastric volume and improved pH, as well as decreased dye in gastric contents, suggesting increased gastric peristalsis
**Enhanced Recovery After Surgery: Acceleration of Positive Outcomes**

**Carbohydrate loading**

- 2014 Cochrane Review involved 27 international studies (total 1976 patients) and 2017 BJS meta-analysis involved 43 trials (total 3110 patients) evaluating clear liquids prior to anesthesia:
  - Fasting
  - Placebo or water
  - Low-dose carbohydrate fluid
  - High-dose carbohydrate fluids (>10 g)


**Effects of carbohydrate loading on surgical outcomes**

- Drinking a high-dose carbohydrate drink (>10g) within 4 hours of surgery led to a shorter length of stay when compared to fasting, but not a significant difference when compared to water or placebo
  - BJS => 10% decrease in stay carbohydrate vs fasting, but no difference vs water/placebo
  - Cochrane Review found 0.42 days reduced LOS comparing carbohydrate drink vs fasting, but no difference in carbohydrate vs placebo/water

- Decreased post-op nausea vs placebo/water seen in BJS analysis but not in the Cochrane

**Effects of carbohydrate loading on surgical outcomes**

- Meta-analysis found no difference between carbohydrate loading, water/placebo or fasting any reviewed outcomes, including:
  - Post-op complications
  - Post-op vomiting
  - Insulin resistance
  - Insulin sensitivity
  - Post-op fatigue and well-being
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Effects of carbohydrate loading on surgical outcomes

- Benefits of decreased LOS and post-op nausea are seen with po intake vs fasting; meta-analysis of > 40 studies does not see a difference between high dose carbohydrate, low-dose carbohydrate, placebo or water
- None of the studies in either review reported any cases of aspiration pneumonia

None of the studies in either review reported any cases of aspiration pneumonia

Effects of carbohydrate loading on insulin resistance

- Data has been mixed over the last decade
- 2011 Cochrane Review showed no benefit in outcomes with pre-operative mechanical bowel prep, but when oral antibiotics are added, there is a decreased rate of surgical site infection and incisional infections
- This was supported in multiple retrospective studies, including the Michigan Surgical Quality Collaborative database which showed a reduction in surgical site infection and a reduction in postoperative Clostridium difficile colitis in patients who received MBP with OBP versus patients who received no bowel preparation


**Enhanced Recovery After Surgery:**
Acceleration of Positive Outcomes

- **Pre-op bowel prep**
  - Michigan Surgical Quality Collaborative database review comparing full bowel prep of mechanical prep with antibiotic vs no prep (included no prep at all and nonmechanical prep)
  - 99% of all patients received appropriate periop antibiotics


