ICD-10-CM: Short Bowel Syndrome and Intestinal Failure Proposal Overview September 14, 2022

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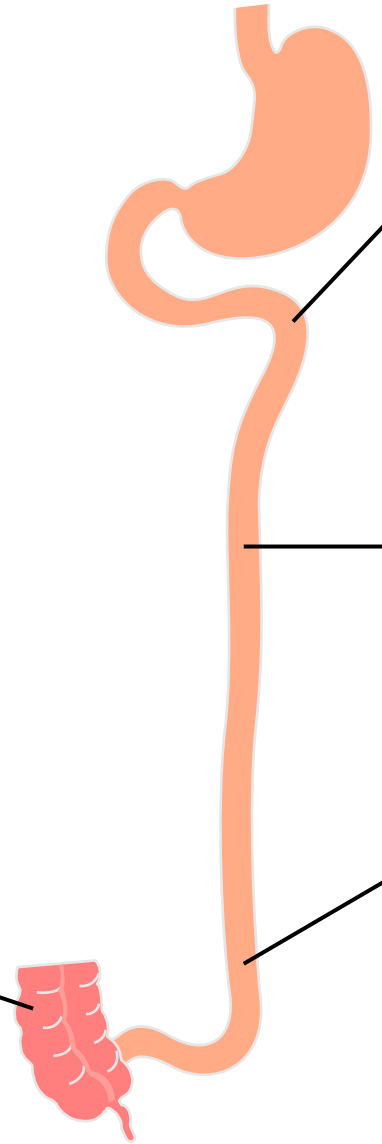
Major Sites of Absorption & Malabsorption



Normal Absorption

Proximal
- Fat
- Sugars
- Peptides and amino acids
- Iron
- Folate
- Calcium
- Water
- Electrolytes

Middle
- Sugars
- Peptides and amino acids
- Calcium
- Electrolytes

Distal
- Bile salts
- Vitamin B12
- Water
- Electrolytes

Colon
- Water
- Electrolytes
- MCT
- Amino acids

Short Bowel Syndrome (SBS) is the Result of Physical Loss and Functional Deficiency of Portions of the Intestine, Primarily Due to Surgical Resection

Malabsorptive spectrum of SBS is wide. Clinical features include:

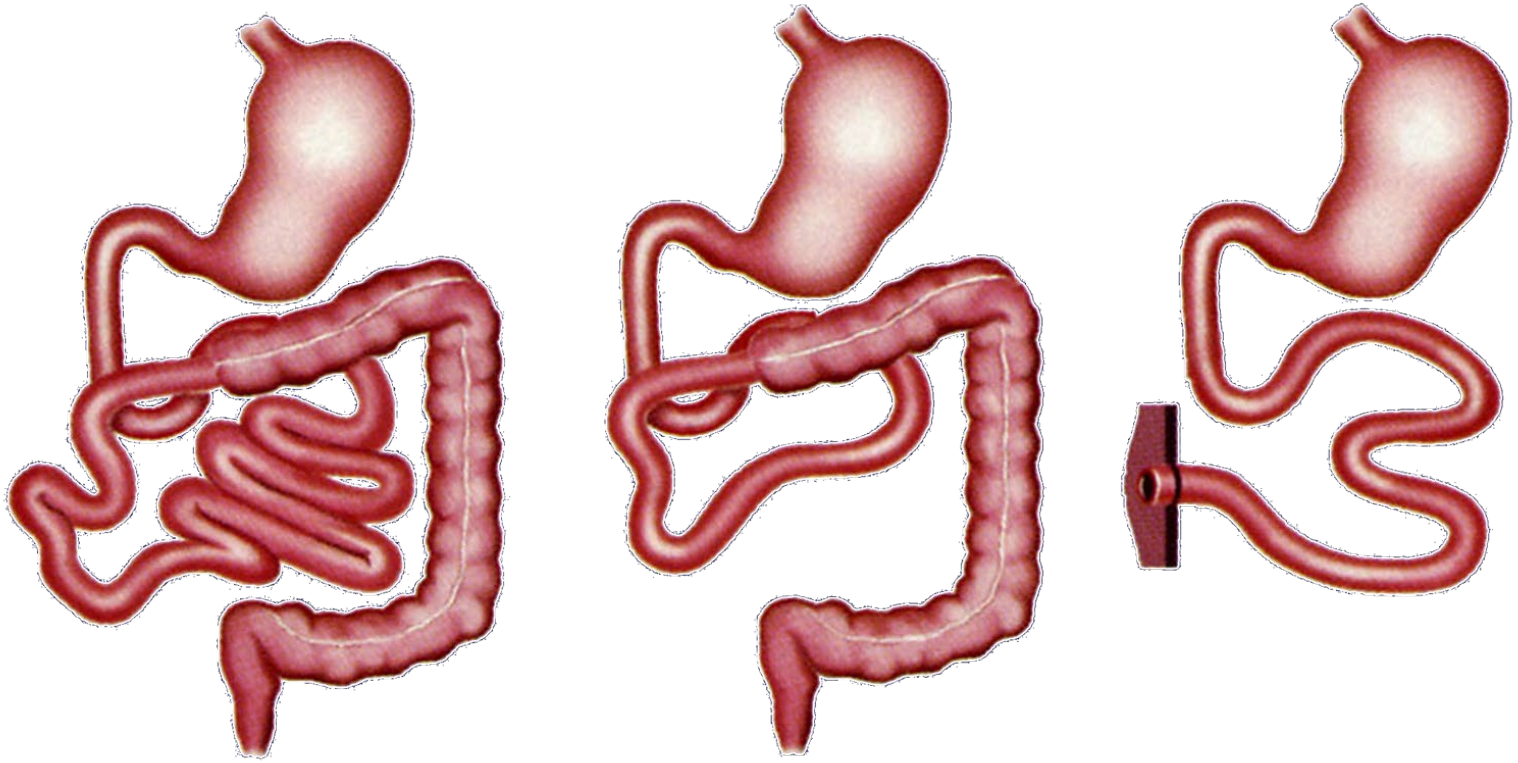
- Malnutrition
- Dehydration
- Electrolyte disturbances
- Diarrhea/Increased outputs

Common causes of SBS include:

Adults	Children
Crohn's disease	Necrotizing enterocolitis
Vascular events	Midgut volvulus
Bariatric surgery complications	Intestinal atresia
Trauma	Gastroschisis
Volvulus	Malrotation
Malignancy	Trauma
Strangulated hernia	Hirschsprung's disease
Small bowel fistula	Vascular events

Common Types of Resection/Anastomosis Occurring in Patients with **Short Bowel Syndrome**

Potential for Adaptation Depends on Remnant Intestinal Length and Anatomy



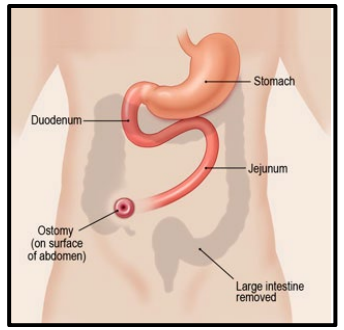
Ileocolonic Anastomosis

Jejunocolonic Anastomosis

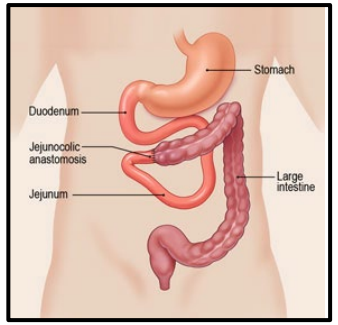
End-Jejunostomy

PS Dependence Depending on Remnant Small Bowel Length and Anatomy Group (1980- Dec 1992)

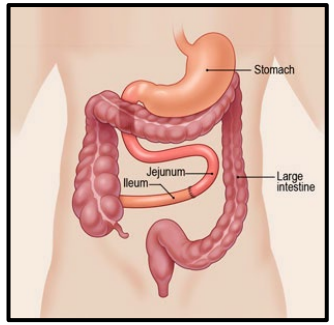
Anatomy Group 1

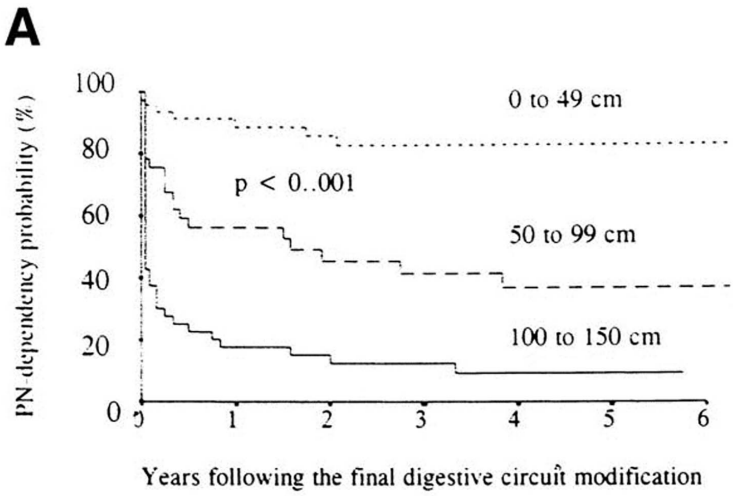


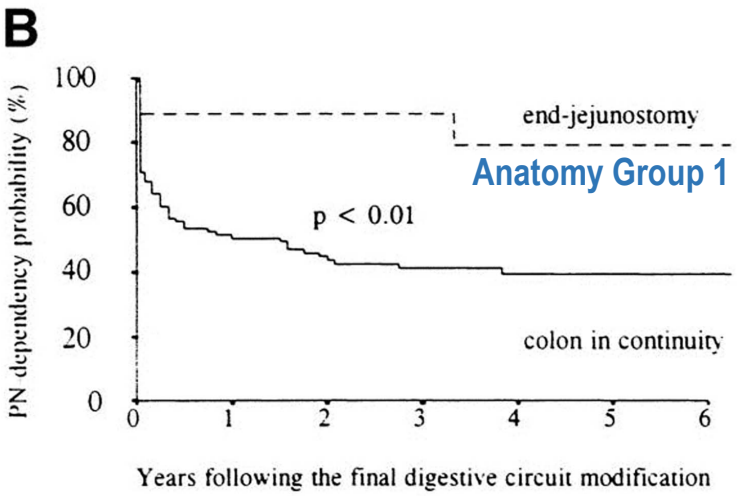
Anatomy Group 2

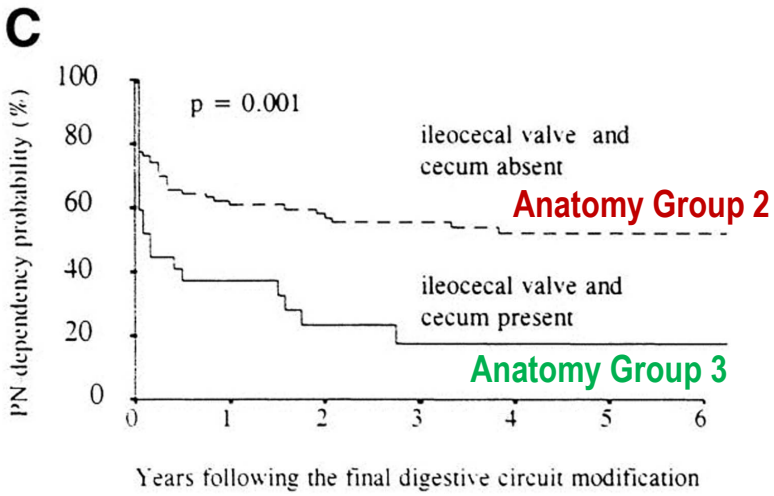


Anatomy Group 3



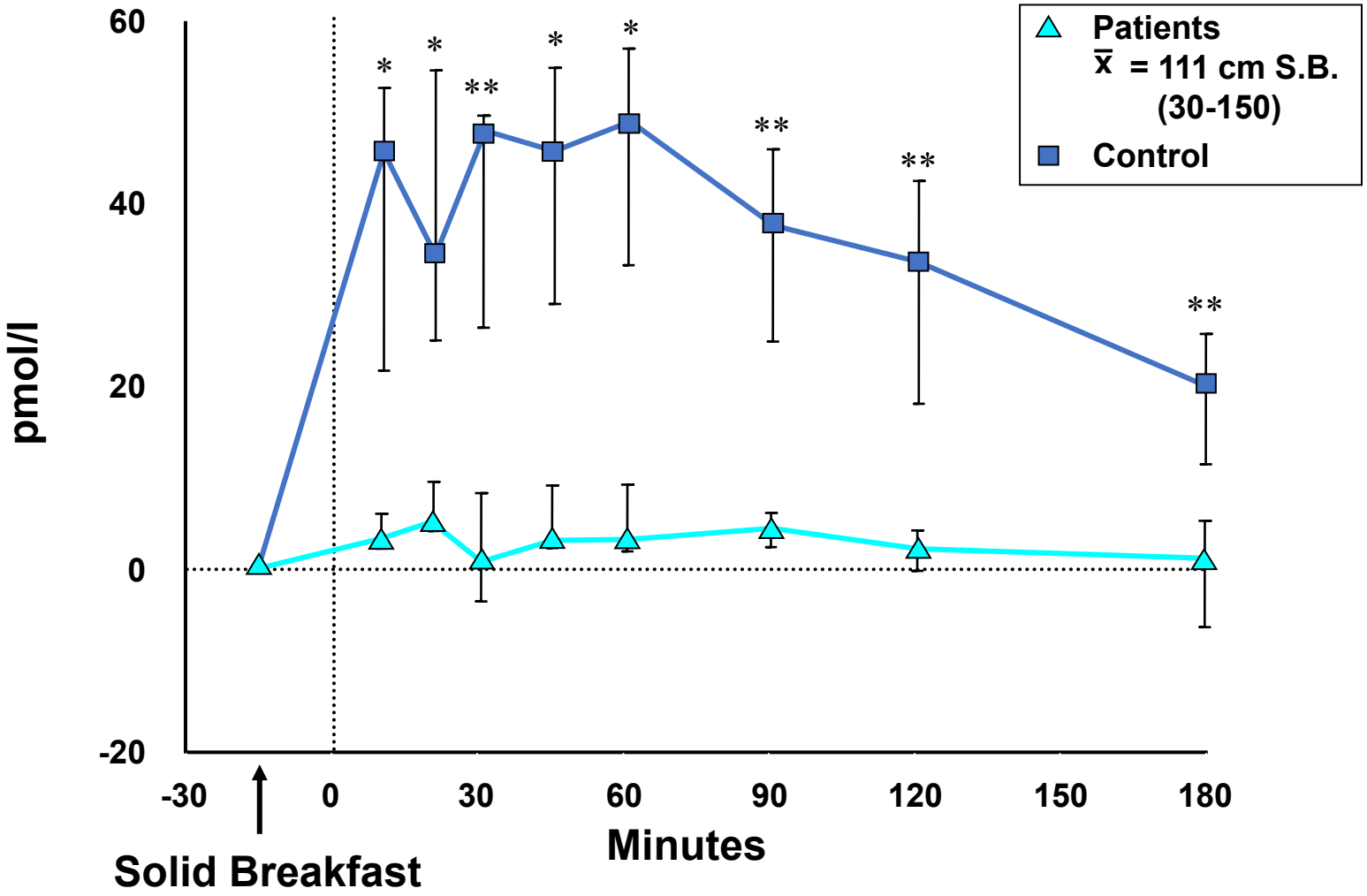






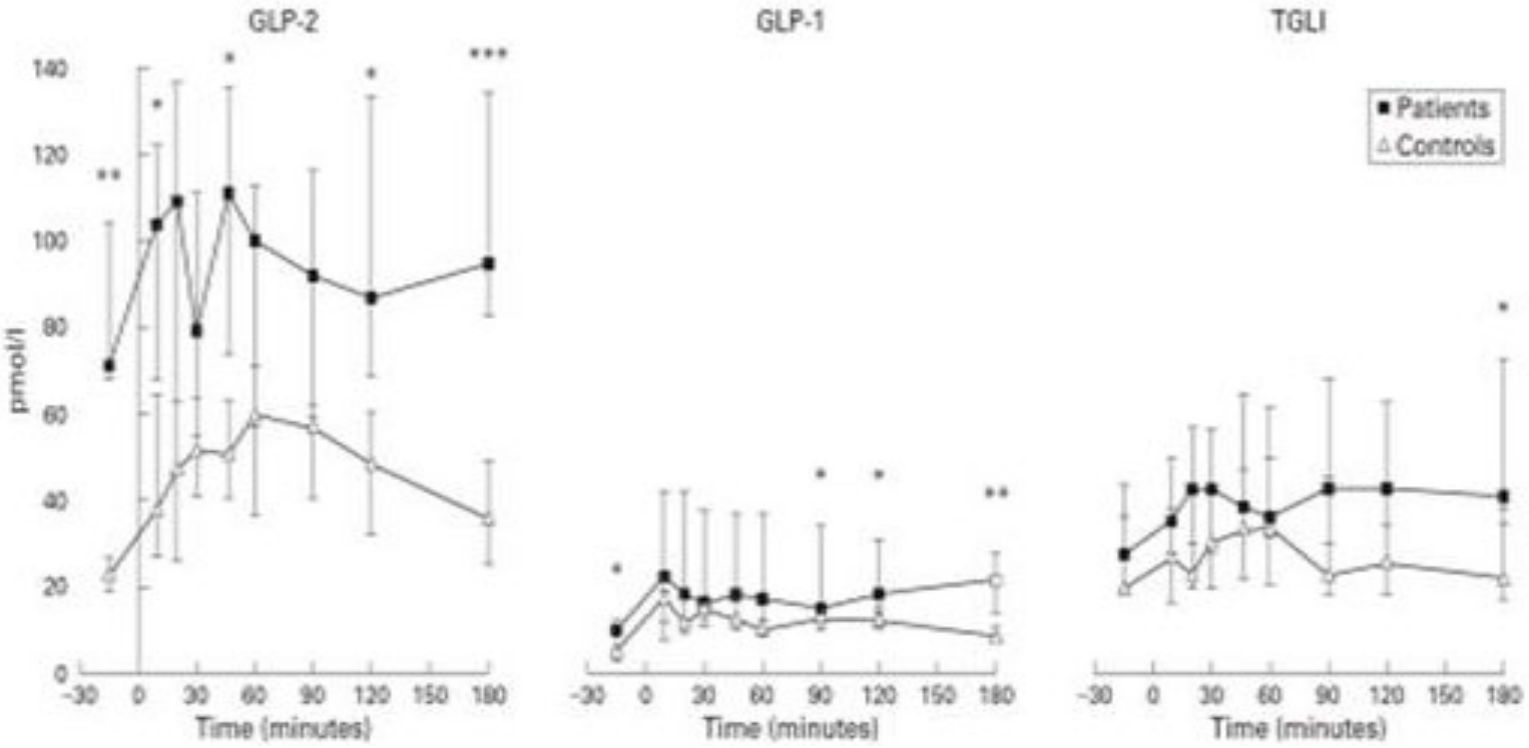
Messing B, et al. *Gastroenterology*. 1991;117(5):1043-1050

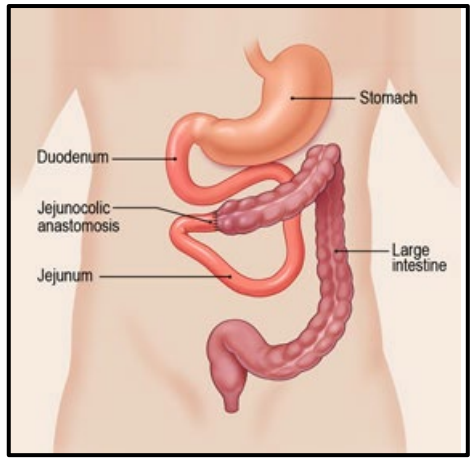
Meal-Stimulated GLP-2 Secretion



Jeppesen et al, Gut 45:559-63, 1999

Elevated Plasma GLP-1 & GLP-2 Concentrations In Ileum Resected SBS Patients With a Preserved Colon





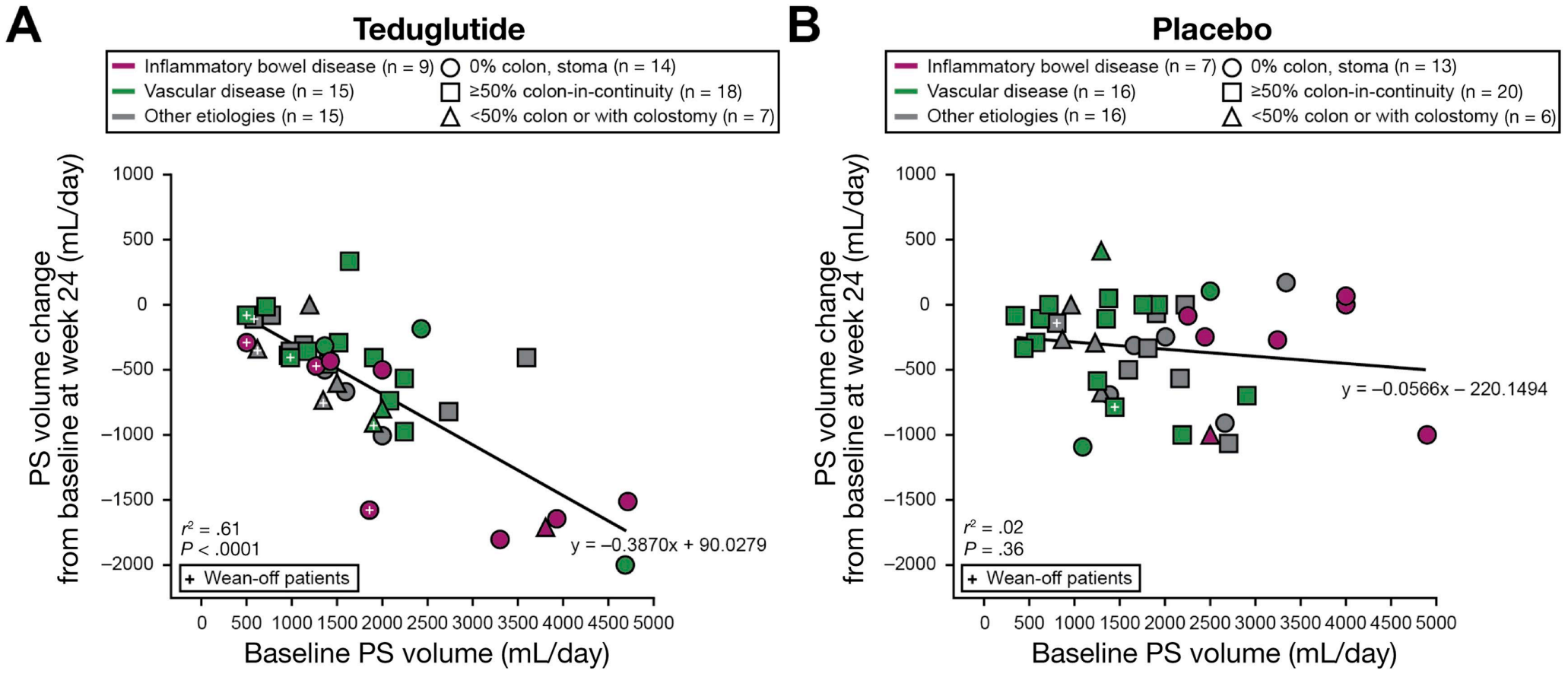
Jejunocolonic Anastomosis

Meal stimulated GLP-1 and GLP-2, and total glucagon-like immunoreactivity (TGLI) responses (pmol/L) in patients and controls.

*p<0.05, **p<0.01, ***p<0.001. Mann-Whitney rank sum test; results are median (25-75%)

Jeppesen et al, *Gut.2000;*47:370-376

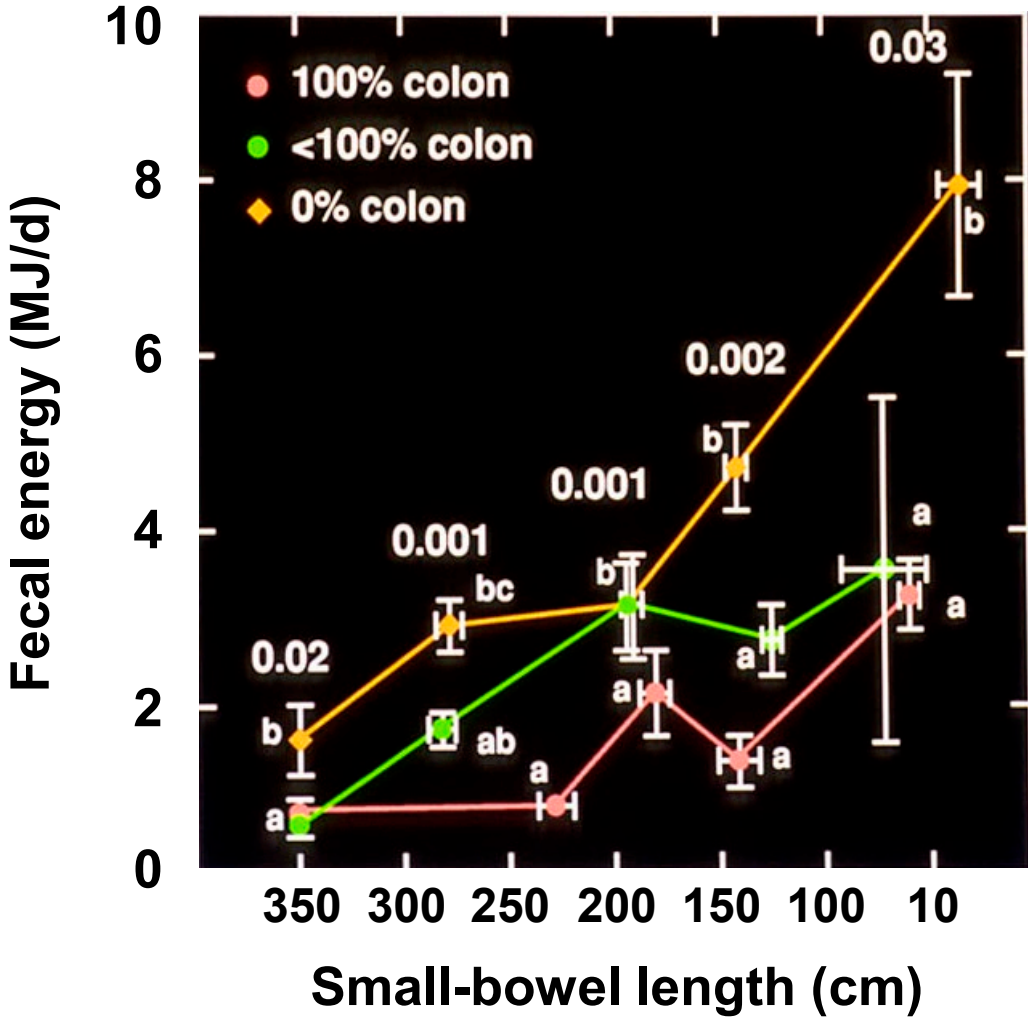
Predictors of Teduglutide Response In Patients With SBS-IF Per Endorsed Classifications



IBD: inflammatory bowel disease, PS: parenteral support, SBS-F: short bowel syndrome due to intestinal failure

Jeppesen et al, *Gastroenterology.2010;*154:77-85

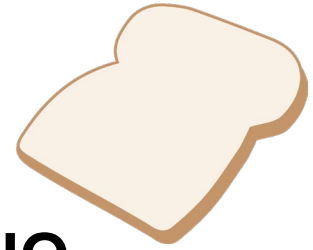
Colonic Digestion in Humans



Nordgaard I, et al, *Am J Clin Nutr* 64:222-31, 1996

Short Bowel Patients with Colon

50g bread meal



↓

24g malabsorbed CHO

↓

240 mmol SCFA (60% acetate)

↓

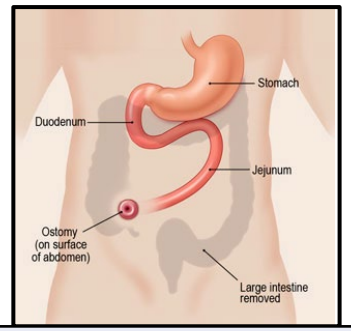
72 kcal

- **Daily caloric absorption of 220-720 mmol SCFA from fermentation of 30-60g non-starch polysaccharides in normal individuals**

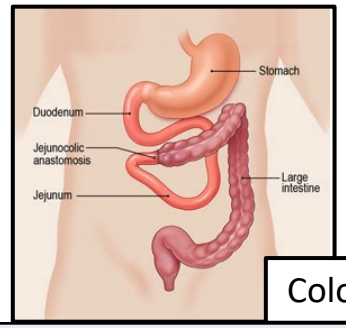
Hoverstad, Scand J Gastro, 1986; Smith & Bryant, Am J Clin Nutr, 1979

Key Difference in SBS Based on GI Anatomy

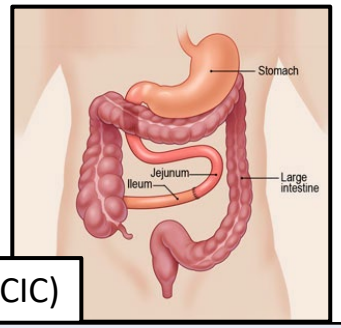
Jejunostomy (Ileostomy) Group 1



Jejuno (Ileo) –Colonic Anastomosis Group 2



Jejuno (Ileo) –Colonic Anastomosis Group 3



Colon-in-Continuity (CIC)

Prevalence	**~45%**	**~45%**	**<10%**
Absorption Deficit	Fluids + Macro/cals	Less Fluid + Macro/cals	Macro/Cals
PS Requirements	Fluid + Nutrients = High PS Volume	Moderate Fluid + Macro/cals = Moderate PS Volume	Mainly Macro/cals = Low PS Volume
Response to GLP-2	Robust Effect on PS Volume	Moderate Effect on PS Volume Reduction	Minimal Effect on PS Volume Reduction

Can try to reduce volume/infusion time
Can improve QoL
Unlikely to wean off PS

Majority of patients who wean off PS
Patients needing GLP-2:
Can get days off PS
Goal should be freedom from PS

Jeppesen PB, Gabe SM, Seidner DL, Lee HM, Olivier C. Factors Associated With Response to Teduglutide in Patients With Short Bowel Syndrome and Intestinal Failure. *Gastroenterology*. 2018 Mar;154(4):874-885

What Are the Benefits of Adding ICD-10-CM Codes for **Short Bowel Syndrome?**

- Improve data collection for epidemiological and outcomes research
- Measurement of outcomes and tracking care provided to patients
- Evaluation of frequency and severity of disease complications
- Quality improvement initiatives

International Classification of Diseases, (ICD-10-CM/PCS) Transition – Background. https://www.cdc.gov/nchs/icd/icd10cm_pcs_background.htm Accessed 2/10/2020.

Summary

- **Short Bowel Syndrome** is a unique disease that requires complex management
- Creation of Unique ICD-10-CM codes for Short Bowel Syndrome variants will facilitate improved patient care and long-term health outcomes