



Managing Side Effects with Diet & Nutrition

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GOALS

- Manage symptoms
- Maintain or improve weight
- Prevent nutritional deficiencies
- Improve quality of life



Common GI Side Effects

Common side effects

- Weight loss
- Loss of appetite
- Nausea and vomiting
- Diarrhea-malabsorption



Other common side effects

- Taste changes
- Acid reflux
- Constipation
- Problems swallowing
- Food intolerances
- Fatigue
- Depression

Weight Loss in GI Cancers

- Pancreatic cancer at time of diagnosis:
 - 85% experience weight loss
 - 30% experience severe weight loss of more than 10%



Arends J. Clinic Nutrition. 2006.

Causes of Weight Loss

- Not consuming enough calories
- Poor appetite
- Food intolerances: fat, simple sugars, lactose
- Feeling full quickly
- Gas and bloating



Weight Loss

- Choose high calorie, high protein foods - "nutrient dense foods"
- Make each bite count
- Eat several small meals/snacks each day- "eat all the time"
- Keep food records/calorie counts



Nutritional Requirements

- **Calories**
 - Weight in pounds divided by 2.2 multiplied by about 30 calories
e.g. $140 \text{ lbs} \div 2.2 = 64 \text{ kg} \times 30 = 1920 \text{ calories}$
 - **Website:**
<http://www.cancer.org/healthy/toolsandcalculators/calculators/app/calorie-counter-calculator>
- **Protein**
 - Sources: meat, fish, poultry, eggs, dairy foods, nuts, legumes/dried beans



*Nutritional needs are patient-specific

Lack of Appetite

- **Causes:**
 - Side effects of treatment: nausea, constipation, diarrhea
 - Biochemical changes caused by chemotherapy and radiation
 - Pain
 - Fatigue, insomnia
 - Depression



Lack of Appetite

- Schedule your meals and snacks
- Maximize your “best” time of the day
- Try physical activity before meals
- High calorie drinks: shakes, Carnation Instant Breakfast, Ensure®
- Keep a food record/calorie count: MyPlate.gov, MyFitnessPal
- Eat several small meals each day
- Choose high calorie, high protein foods
- Discuss with your medical team



Appetite Stimulants

- Megace/Megace ES
- Marinol
- Remeron



Nausea

- Causes
 - Treatment related: chemotherapy, radiation
 - Surgery
 - Feeling overly full after eating
 - Dumping syndrome



Nausea

- Management:
 - Take anti-nausea medications as directed
 - Eat small amounts often and slowly
 - Try foods that are easy on the stomach
 - Bland foods - "white foods"
 - Meet fluid needs



Causes of Diarrhea

- Treatment: radiation, chemotherapy
- Dumping syndrome
- Fat malabsorption/pancreatic enzyme insufficiency
- Lactase deficiency
- Medications: antibiotics, medications with sorbitol, antacids with magnesium, potassium, phosphorous supplements
- Bacterial infections



Diarrhea

- Management:
 - Drink plenty of clear liquids
 - Eat small meals and snacks
 - Include foods with soluble fiber: applesauce, bananas, oat/oat bran, barley
 - Soluble fiber supplements: Benefiber®, Citrucel®
 - Milk and milk products may need to be avoided. Try Lactaid® products
 - Probiotics
 - Take medications as ordered

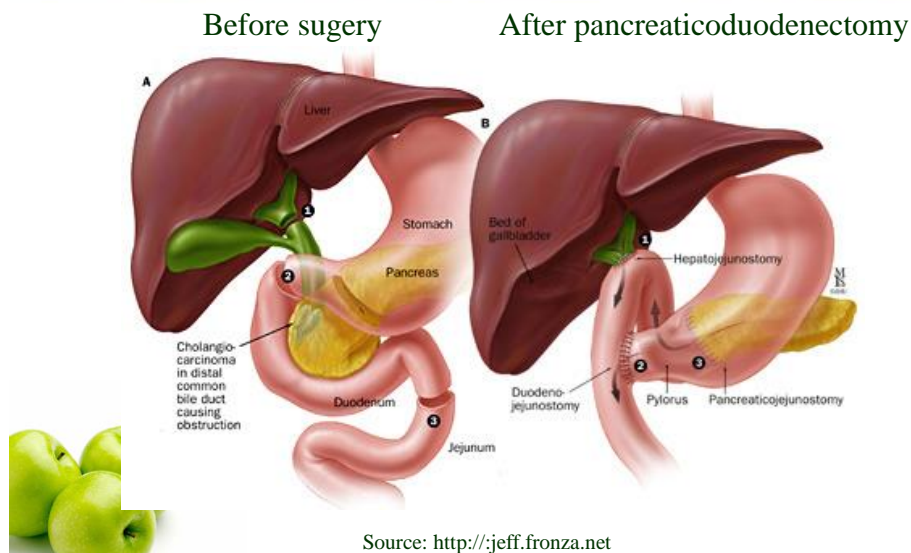


Dumping Syndrome

- Cause: total or subtotal gastrectomy
- Prevalence: 25-50% pts after surgery
- Symptoms
 - Fatigue, faintness, headache, rapid heart rate, cramps, nausea, vomiting, diarrhea
- Post-gastrectomy diet:
 - Small frequent meals, eat foods high in protein and complex carbohydrates, limit simple sugars, separate food and fluids, and monitor tolerance for fats and dairy foods



Surgery for Pancreatic Cancer



Source: <http://jeff.fronza.net>



Malabsorption

- 80%-90% patients diagnosed with pancreatic cancer experience malabsorption
- Causes:
 - Reduction in enzyme secretion related to surgery and disease
 - Decrease gastric secretions:
 - ↓cholecystokinin contributes to
 - ↓pancreatic enzymes

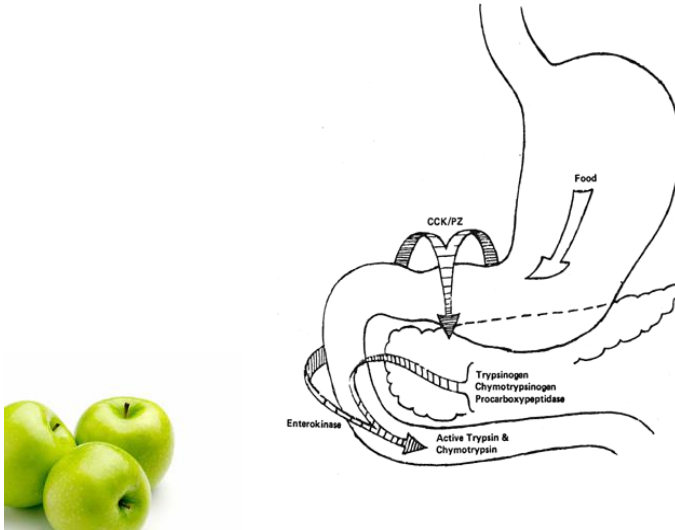


Malabsorption

- Weight loss:
 - May lack digestive enzymes causing malabsorption of fat, protein and carbohydrate
 - May lack buffering agent which maintains pH



Malabsorption



Symptoms of Malabsorption

- Diarrhea – frequent stools
 - Foul smelling, oily stools
 - Stools that float
 - Passage of undigested food
 - Unexplained weight loss
 - Abdominal pain
 - Bloating and gas
 - Belching
 - Anemia
- * Malabsorption of oral medications even possibly oral chemotherapies



Managing Malabsorption

- Low fat diet counter productive
- Enzyme replacement
- Combine enzymes with an acid reducing medication PPI or H₂ blocker
- Do not take with antacids containing calcium or magnesium, or with iron supplements



Enzymes

- Enzyme dosing is based on lipase units per capsule: 3,000-40,000
- To determine lipase units/capsules - multiply the number after brand name by 1000 :
 - Creon 24 = 24,000 lipase units/capsule
 - Zenpep 40 = 40,000 lipase units/capsule



Enzymes

- Dosing:
 - Starting dose of 20,000 - 50,000 units per meal
 - 1000 units lipase/kg/day
 - 4000 units/5-7 grams of fat
 - Safe upper limit is 2500 lipase units/kg/meal (Cystic Fibrosis Foundation Clinical Guidelines)



<https://www.pancan.org/section-facing-pancreatic-cancer/learn-about-pan-cancer/diet-and-nutrition/pancreatic-enzymes/>

Enzymes

- FDA approved
 - Creon by AbbVie
 - Pancreaze by Janssen
 - Pertzye by Digestive Care, Inc.
 - Pancrelipase – generic
 - Ultresa by Aptalis
 - Zenpap by Aptalis



Enzymes

- Enzymes must be taken consistently
- Do not skip doses
- Must be consumed with/around meals so they travel the gut together
- Must be taken at the start of or half way through the meal – not after the meal
- Can mix contents of capsules with nondairy food (e.g. applesauce) but swallow immediately



Enzymes

- Adjust dose based on symptoms
- Minimize pills once dose is determined
- Adjust dose based on fat content of meal/snack/supplement drinks
- Also need with protein and carbohydrates
- Requirements can change over time
- One brand may work better than another
- Dosing of enzymes is an art and a science



Micronutrients Deficiencies

- Fat soluble vitamins
 - Vitamins A, D, E, K
- Calcium, Magnesium
- Iron, Zinc
- Vitamin B12
- Bicarbonate



Complementary and Alternative Medicine (CAM)

- Concerns:
 - Interactions with chemotherapy, radiation and medications
 - Lack of purity and standardization: contamination, variable amounts of compounds
 - Restrictive and alternative diets
 - Questionable practices: coffee enemas, oxygen therapy, etc.



High Blood Sugars

- Glucose intolerance/diabetes
- Medication
- Monitor blood sugars
- Limit refined carbohydrates
- Meet with a dietitian



Does sugar “feed” cancer?



- All carbohydrates break down to simple sugar/glucose
- Glucose is our body’s fuel—used by every cell in body
- Simple sugar from foods produces insulin response
- Insulin is a hormone that promotes cell growth
- Higher hormone levels are the problem—not the sugar.



<https://www.oncologynutrition.org/erfc/healthy-nutrition-now/sugar-and-cancer/>

Sugar



- Goal is to maintain your blood sugar and lower production of insulin
- Eat complex carbohydrates: vegetables, whole grains, legumes, fruit
- Limit intake of simple carbohydrates – table sugar, soda, candy, highly refined snacks, and sweet baked items
- Eat sugar containing foods with protein, fat and fiber
- Eat small frequent meals

<https://www.oncologynutrition.org/erfc/healthy-nutrition-now/sugar-and-cancer/>



Summary

- Nutritional issues with pancreatic cancer are complex and multifactorial
- Nutritional goals:
 - Maintain weight
 - Manage GI problems
 - Prevent nutritional deficiencies
 - Improve quality of life
- Referral to a Registered Dietitian
 - – RDN and CSO



Additional Resources

- **PanCAN Diet & Nutrition Book:**
 - <https://www.pancan.org/section-facing-pancreatic-cancer/learn-about-pan-cancer/diet-and-nutrition/>
- **National Cancer Institute's Eating Hints:**
 - <http://www.cancer.gov/cancertopics/coping/eatinghints>
- **American Cancer Center:**
 - <http://www.cancer.org/Treatment/SurvivorshipDuringandAfterTreatment/NutritionforPeoplewithCancer/NutritionforthePersonwithCancer/index>
- **Abramson Cancer Center Nutrition Services**
 - <https://www.pennmedicine.org/cancer/navigating-cancer-care/support-services/nutrition-resources>



Questions

