



**Optimizing Nutrition through the Continuum of Care:
Pancreatic Enzymes, Symptom and Side Effect Management**

September 13, 2016

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**OPTIMIZING NUTRITION THROUGH
THE CONTINUUM OF CARE:
PANCREATIC ENZYMES, SYMPTOM AND SIDE EFFECT
MANAGEMENT**

SEPTEMBER 13, 2016



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PROVEN BENEFITS OF NUTRITION

“Nutrition intervention improves outcomes in patients with cancer cachexia receiving chemotherapy.”

- Nutrition counselling by a dietitian
- Prescription of oral nutritional supplements

Bauer JD, Capra S. Support Care Cancer. 2005 Apr;13(4):270-4.

PROVEN BENEFITS OF NUTRITION

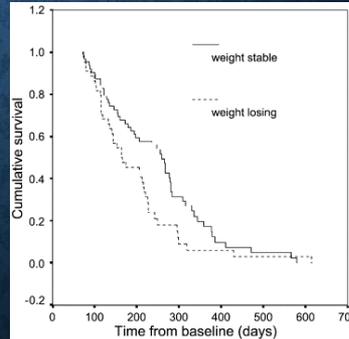
Results after 8 weeks:

- ↑ dietary intake
- ↑ nutrition status
- ↑ physical functioning
- ↑ quality of life
- ↑ trends in weight and muscle mass

PROVEN BENEFITS OF NUTRITION

“ Weight stabilization is associated with improved survival duration and quality of life in unresectable pancreatic cancer. “

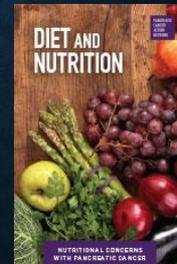
- ↑ quality of life
- ↑ survival duration



Davidson W, Ash S, Capra S, Bauer J; Cancer Cachexia Study Group. Clin Nutr. 2004 Apr;23(2):239-47.

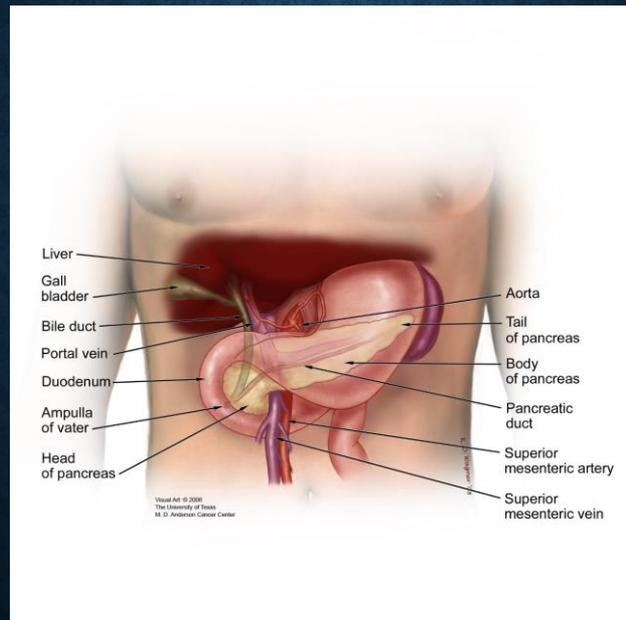
NUTRITION THERAPY GOALS

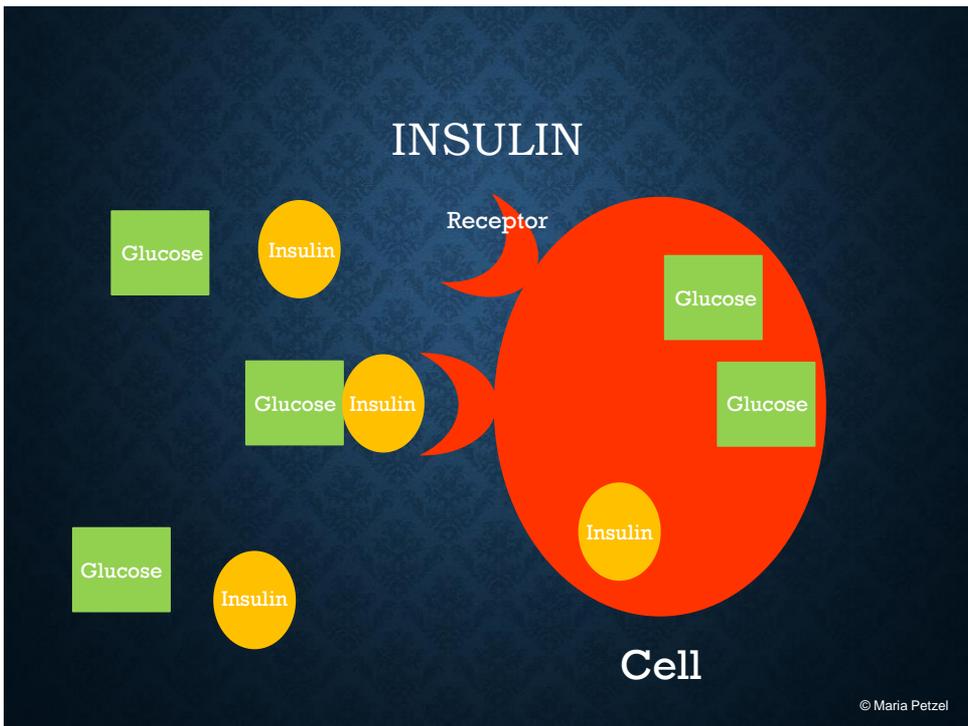
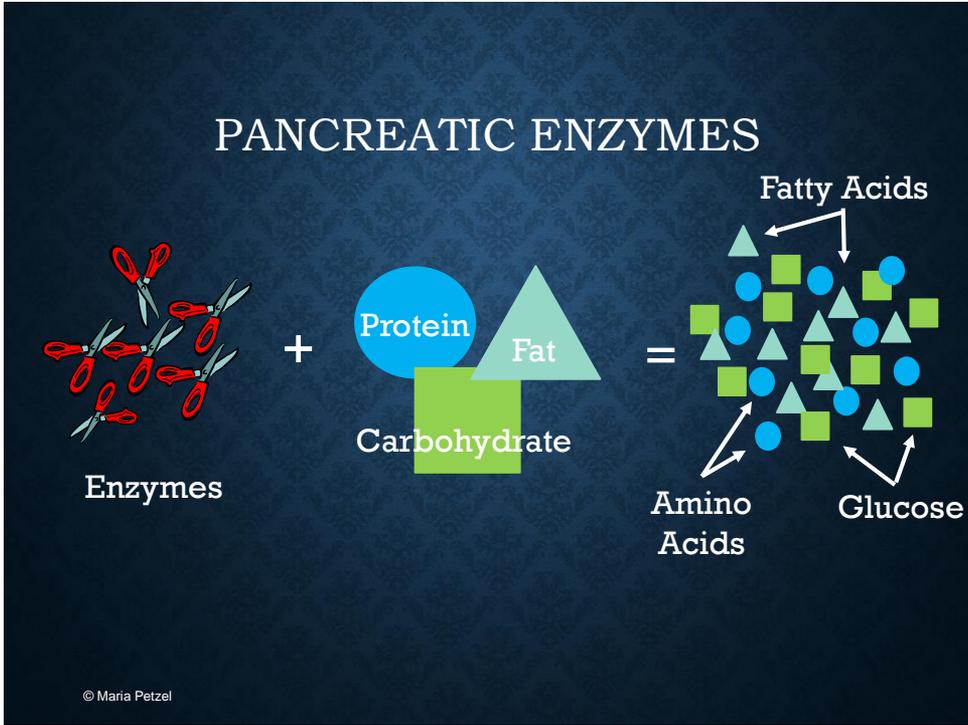
- Prevent or reverse poor nutrition
- Maintain dose and schedule of cancer treatments
- Manage symptoms
- Maintain or improve weight and strength
- Maximize quality of life
- Recover from surgery and go on to postop therapy as appropriate



ROLE OF THE PANCREAS

- Produce enzymes to help digest food to be transported in blood stream.
- Produce insulin to help transfer glucose from the blood to the cells where it is used for energy.





OUTLINE

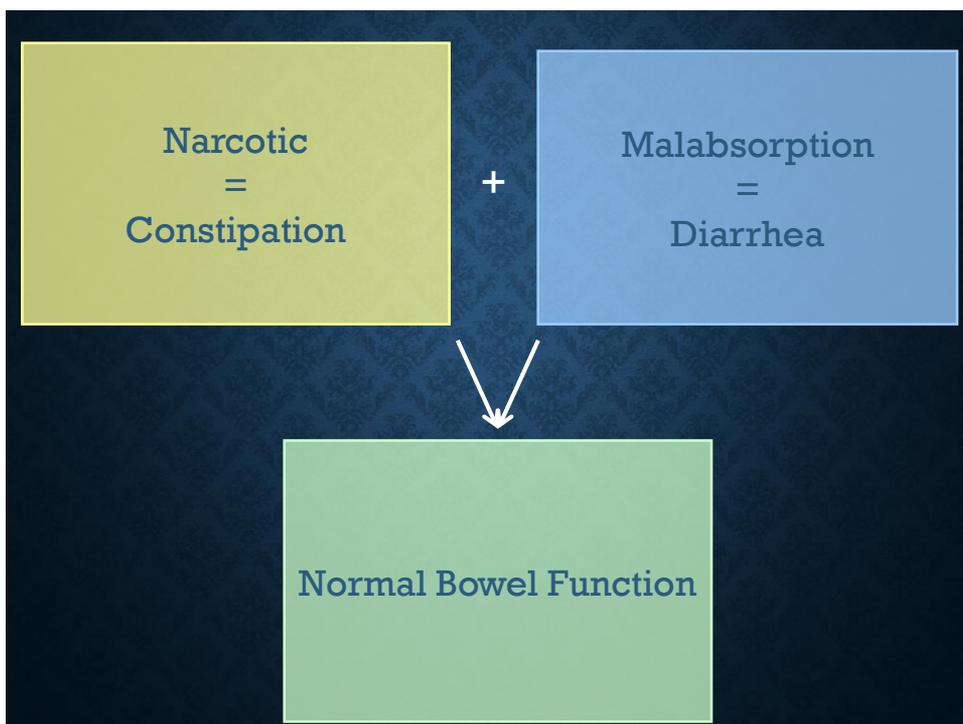
- Pancreatic exocrine insufficiency
- Symptom management
- What to eat
- Long-term nutrition considerations

PANCREATIC ENZYMES



SYMPTOMS OF PANCREATIC EXOCRINE INSUFFICIENCY

- Feelings of indigestion
- Cramping after meals
- Large amounts of gas
- Foul smelling gas or stools
- Floating stools or greasy/fatty stools
- Frequent stools
- Loose stools/diarrhea
- Unexplained weight loss



HOW TO OPTIMIZE ENZYMES:

- Take at the beginning and throughout the meal/snack
- Troubleshooting may include adjustments to timing
- Don't take at the same time as antacids or iron supplements
- If prescribed by your doctor, take acid reducing medication daily.

THE RIGHT ENZYME AND HOW MUCH TO TAKE

- Find the brand and the dose that works for you and stick with it.
- Start:
 - Meals: 20,000-40,000 units of lipase per meal
 - Snacks: 10,000-20,000 units of lipase per snack

Current Brands Available by Prescription

- Creon	- Pancreaze
- Pertzye	- Viokase
- Zenpep	

ENZYME DOSAGE: TITRATION

- Increase until pancreatic insufficiency symptoms are minimized/eliminated
- Maximum: 2500 units of lipase per kilogram per meal (or 10000 units of lipase per kilogram per day)

WHAT DOES THAT REALLY MEAN?

- 60 kg (130 lb) woman
- Max daily dose = weight x 10,000 L.U.

$60 \times 10000 = 600,000$ lipase units/day =

48 capsules Creon 12,000

Or **60 capsules** Zenpep 10,000

PANCREATIC ENZYMES: SIDE EFFECTS OF TOO MANY

- Constipation (most common)
- Nausea
- Abdominal Cramps
- Diarrhea

Careful not to confuse with symptoms of inadequate enzyme use or chemotherapy or radiation treatment.

SYMPTOM MANAGEMENT

COMMON SIDE EFFECTS

- Poor appetite
- Early satiety
- Nausea and/or vomiting
- Taste Changes
- Diarrhea
 - Lactose Intolerance
 - Dumping syndrome *
- Constipation
- Excessive gas
- Diabetes

* More common with surgery

POOR APPETITE

- Eat small amounts frequently
- Schedule meals/snacks
- Use liquid calories
- Light activity
- May benefit from medication

EARLY SATIETY

- Alleviate gas and bloating
- Liquids between meals
- Small servings, more often
- Limit high fat or fried foods
- High fiber foods may be problematic
- Medications

NAUSEA/VOMITING

- Medication
- Eliminate offending odors
- Dry crackers/toast
- Avoid overly sweet, greasy/fried, or highly spiced foods
- Use room temp foods
- Oral care
- Eliminate stress

TASTE CHANGES

- Rinse mouth
- Metallic taste: use plastic utensils and serving ware
- Enhance dull taste use tart flavors
- Try new foods or foods previously disliked

DIARRHEA

- Work closely with medical team (multiple causes of diarrhea):
 - Treatment Induced
 - Lactose Intolerance
 - Bacterial Overgrowth
 - Pancreatic/Digestive Insufficiency
 - Dumping syndrome (after Whipple or gastric bypass)

NUTRITION THERAPY FOR DIARRHEA (INDEPENDENT OF CAUSE)

Limit or avoid:

- Lactose (or add lactase)
- Insoluble fiber
- Foods sweetened with sugar alcohol
- Sugar sweetened beverages

Increase:

- Soluble fiber
- Fluids

LACTOSE INTOLERANCE

- May be temporary
- May be able to tolerate low lactose foods
- Provide lactase enzymes prior to a meal—avoid limiting diet

DUMPING: SYMPTOMS

- Flushing
- Sweating
- Feeling of low blood sugar
- Loose BM

Generally occur within 2 hours of eating.

DUMPING

- Limit portion sizes
- Drink liquids between meals
- Avoid foods high in sugar
- Avoid hot liquids
- Add soluble fiber

CONSTIPATION

- Bowel regimen may be warranted
- Hot fluids
- Include high fiber foods
- Limit gas forming foods, carbonated beverages, straws, chewing gum

EXCESSIVE GAS

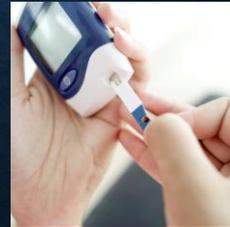
- Optimize pancreatic enzymes
- Use simethicone (Gas-X) liberally
- Avoid gas-producing foods:
 - Broccoli, cauliflower, cabbage
 - Onions
 - Beans
 - Carbonated beverages (beer, soda)
- Avoid chewing gum
- Avoid drinking through straws
- Consider Bean-O

GLUCOSE INTOLERANCE/DIABETES

- Medication
- Customize diet
- Limit refined carbohydrates
- Eat carbs in combination with protein, fiber, and fats

After treatment/surgery complete:

- Carbohydrate controlled diet
- Use high fiber carb foods as tolerated



WHAT TO EAT?

GENERAL NUTRITION TIPS

- Eat small frequent meals (6-8/day)
- Plan meals/snacks the day before
- Get plenty of fluids
- Limit use/portions of fat containing foods
- Choose nutrient dense foods
- Be active

PROTEIN

- Poultry, fish, meat
- Beans, peas, lentils
- Nuts and seeds
- Eggs
- Yogurt, milk, cheese
- Vegetarian alternatives: soy milk, tofu, veggie burgers, protein powders, etc.

COMPLEX CARBOHYDRATE

- Bread, pasta, rice, cereal, etc
- Fruits
- Vegetables
- Dairy products

FAT (AS TOLERATED)

- Nuts and seeds
- Avocado
- Olives
- Oil: canola, olive, peanut

FLUIDS

Most patients require 6 to 12 cups per day of non-alcoholic fluid per day to maintain adequate hydration. (8 oz. = 1 cup)

Water

Tea

Juice

Sports drinks

Milk or dairy alternatives

Broth

Gelatin

LIQUID NUTRITIONAL DRINKS

Regular

- Boost
- Orgain
- Ensure
- Enu

Diabetic

- Glucerna
- Boost Glucose Control

- Home made smoothies
 - Mix in blender
 - Liquid: juice, yogurt, milk, soymilk, etc
 - Fruit and/or cooked vegetables
 - Protein: protein powder, tofu, cottage cheese, Greek yogurt

LOOKING AHEAD- NUTRITION AND SURVIVORSHIP



AICR GUIDELINES FOR CANCER SURVIVORSHIP

- Be lean but not underweight
- Physically active 30 minutes a day
- Avoid sugary drinks and limit consumption of energy dense foods (high in sugar, low in fiber, and high in fat)
- Variety of fruits, vegetables and whole grains, legumes
- Limit consumption of red meat and processed meats
- Limit alcohol
- Limit salty foods or processed foods high in salt
- Do not rely on supplements to protect against cancer





PICK ME!



- Citrus
- Apples
- Parsley
- Grapes
- Flaxseed
- Walnuts
- Soy
- Dark Green Leafy
- Winter squash
- Broccoli and cruciferous vegetables
- Legumes, dry beans, peas and lentils
- Cranberries
- Blueberries
- Cherries
- Tea
- Whole grains

MAINTAIN OPTIMAL NUTRITIONAL STATUS

- Set goal weight
- Daily MVI and mineral supplement
- For Bone Health: Calcium 500-1000mg/D and Vitamin D at 600-1000IU/D as warranted
- Ongoing monitoring of fat malabsorption
- May need acid reducing medication
- Manage Diabetes Mellitus
 - Diabetes Educator for comprehensive teaching

MONITORING FOR VITAMIN AND MINERAL DEFICIENCIES

- Vitamin B12
- Iron
- Ferritin
- Vitamin D or 25OHD
- If suspect severe malnutrition or malabsorption, may check Vitamins E, A, K, as well as zinc, copper and selenium
- Bone mineral density



WHAT ABOUT OTHER DIETARY SUPPLEMENTS?



REGULATORY STANDARDS OF DIETARY SUPPLEMENTS

- Premarket notifications to the FDA
- Proof of Efficacy
- Proof of Safety
- Premarket FDA approval and post marketing surveillance
- Good Manufacturing Practices
- Disease Treatment Claims

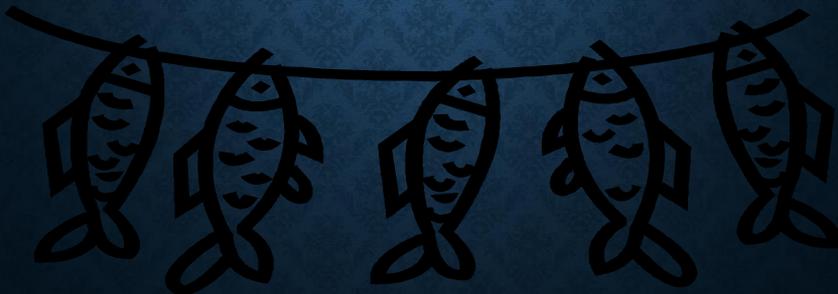
MISCONCEPTIONS AND RISKS

- “Pose no risk to the general population” and “rarely or never harmed by supplements”
- “More is better”
- “Natural or Standardized”
- Quality concerns are challenging
- False claims
- Other concerns-surgical or procedural complications



SUPPLEMENTS

- Turmeric
- Omega-3 Fatty Acids
- Probiotics



TURMERIC/CURCUMIN

- Studies in advanced pancreatic cancer found to be well tolerated
- Combination with some chemotherapy agents found to be safe
- Poor absorption
- May work against some chemotherapy drugs ie cyclophosphamide
- Watch for drug/herb interactions

OMEGA 3 FATTY ACIDS

- Fish oil, krill oil, cod liver oil, flaxseed oil, linseed oil
- Supplementation for cancer prevention is inconclusive
- Preliminary findings that it may support muscle mass, may increase efficacy and tolerability of chemotherapy
- Doses greater than 3 grams may increase bleeding time
- Do not take if you are taking NSAIDS or Glucocorticoids

PROBIOTICS FOR DIARRHEA

- Sources of probiotics:
 - Foods
 - Dietary Supplements

RESOURCES

- ConsumerLab: independent product testing
www.consumerlab.com
- The National Institutes of Health Office of Dietary Supplements-
<http://dietary-supplements.info.nih.gov>
- Memorial Sloan Kettering Cancer Center Website
www.mskcc.org/cancer-care/integrative-medicine
- National Center for Complementary and Alternative Medicine
www.nccam.nih.gov/
- U.S. Pharmacopeial Convention
<http://www.usp.org/dietary-supplements/overview>



FINDING A DIETITIAN

- How to Find a Registered Dietitian:
 - Request a consult at your cancer center
 - Commission on Dietetic Registration
 - Search: Board Certified Specialists in Oncology Nutrition List by State-
www.cdrnet.org
 - Contact the Pancreatic Cancer Action Network
 - Contact The Academy of Nutrition and Dietetics
www.eatright.org

COOKBOOKS

- What to Eat During Cancer Treatment: 100 Great-Tasting, Family-Friendly Recipes to Help You Cope (2009) by Jeanne Besser
- The Cancer-fighting Kitchen: Nourishing, Big-Flavor Recipes for Cancer Treatment and Recovery (2009) by Rebecca Katz
- One Bite at a Time (2009) by Rebecca Katz
- The New American Plate Cookbook: Recipes for a Healthy Weight and a Healthy Life (2005) by The American Institute for Cancer Research
- Online:
 - AICR
 - Cooking Comfort Care
 - Cook for Your Life

READY TO ANSWER
QUESTIONS...



Thank you for your participation.

If you have questions, please contact Patient Central at
(877) 272-6226 or e-mail patientcentral@pancan.org.

www.pancan.org

