

Nutrition Management for Pancreatic Cancer

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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

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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.

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Common Side Effects

- Diarrhea
- Pancreatic exocrine insufficiency
- Glucose intolerance, diabetes
- Nausea and/or vomiting
- Loss of appetite, weight loss

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Common Side Effects (continued)

- Taste changes
- Early satiety
- Pain with eating
- Fatigue
- Constipation
- Dumping syndrome

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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

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How to Optimize Enzymes:

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

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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

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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)

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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

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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.)

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Bowel Management

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)

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Nutrition Therapy for Diarrhea

Independent of cause

Limit or avoid:

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

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Nutrition Therapy for Diarrhea

Independent of cause

Increase:

- Soluble fiber
- Fluids

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Probiotics for Diarrhea

- Sources of probiotics:
 - Foods
 - Dietary Supplements

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Lactose Intolerance

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

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Dumping: symptoms

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

Generally occur within 2 hours of eating.

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Dumping

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

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Constipation

- Hot fluids
- Include high fiber foods
- Limit gas forming foods, carbonated beverages, straws, chewing gum

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Nutrition Tips for Other Side Effects

Nausea/Vomiting

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

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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
- Zinc (discuss with medical team)

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Poor Appetite

- Eat small amounts frequently
- Schedule meals/snacks
- Use liquid supplements/smoothies
- Light exercise
- Alcoholic beverage before meal
- May benefit from medication

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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

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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

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Pain with Eating

- Avoid high fiber foods
- Chew food well
- Take pain medication proactively
- Avoid constipation

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Excessive gas

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

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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

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Protein

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

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Complex Carbohydrate

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

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Fat (as tolerated)

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

Other fats to use sparingly:

- Butter, stick margarine, hydrogenated oils (or foods that use these as ingredients)

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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 (100%)

Sports drinks

Milk or dairy alternatives

Broth

Gelatin

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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

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Supplements and Special Diets

If diet inadequate-

- “One a day” multiple vitamin and mineral supplement
- Calcium with vitamin D
- Fish oil/Omega-3

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Resources

- ConsumerLab: independent product testing
www.consumerlab.com
- The National Institutes of Health Office of Dietary Supplements-
<http://dietary-supplements.info.nih.gov>
- M.D. Anderson Complementary/Integrative Medicine Education Resources-
www.mdanderson.org/departments/cimer

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Eating Long Term: after all treatment complete

Plant based diet

- 2 ½ cups (at least) of fruits and vegetables per day.
 - Even better: 3 ½ - 4 ½ cups per day.
 - If raw vegetables hard to digest, use cooked or juiced
- Healthy Fats
- Fish
- Limit red meat

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After All Treatment Completed

- Be active
- Take enzymes
- Take acid reducing medication (if prescribed by your surgeon).
- Follow with primary doctor for diabetes management and bone health.

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“Super Foods”

- Citrus
- Apples
- Parsley
- Grapes
- Turmeric
- Peanuts
- Berries
- Soy*
- Red wine*

* If history of breast or ovarian cancer discuss with dietitian or doctor first

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Finding a Dietitian

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

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Cookbooks

- Betty Crocker's Living With Cancer Cookbook (2011)
- 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
- Eating Well Through Cancer: Easy Recipes & Recommendations During & After Treatment (2006) by Holly Clegg
- The New American Plate Cookbook: Recipes for a Healthy Weight and a Healthy Life (2005) by The American Institute for Cancer Research

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