Memorial Sloan Kettering Cancer Center

PATIENT & CAREGIVER EDUCATION

About Pancreatic Enzyme Replacement Therapy (PERT)

This information explains what pancreatic enzyme replacement therapy (PERT) is and how it works.

Your pancreas makes pancreatic enzymes to help you digest food. Some diseases or treatments may stop your pancreas from making or releasing pancreatic enzymes. This can affect how your body digests (breaks down) food. Taking PERT and making changes to your diet can help your body better absorb the foods you eat.

What are the symptoms of not having enough pancreatic enzymes?

You may not have enough pancreatic enzymes if you have symptoms of malabsorption (MA-lub-SORP-shun). Malabsorption is not being able to absorb nutrients from food.

Symptoms of malabsorption include:

- Bloating
- Stomach cramps after meals
- More gas than usual, such as burping or flatulence (farting)
- More bowel movements (poop) than usual
- Indigestion (stomach pain)
- Changes in your poop, such as:
  - Steatorrhea (fatty or oily poop)

    - Floating poop
    - Light colored or yellow poop
    - Poop that is looser or softer than usual
- Foul-smelling gas or poop
- Unexplained weight loss

What is PERT?

PERT is a capsule (pill) that replaces the enzymes that are made in your pancreas. In most cases, it's a life-long treatment.

When should I take PERT?

Your healthcare provider may prescribe PERT to help you digest your food. Your prescription will be based on your weight. It may be changed based on your symptoms or how much fat is in the food you eat.

Follow these tips to make sure PERT works as it should:

- Plan how long it will take to eat your meal. It's important that pancreatic enzymes move through your digestive system with your food.
- Take the first capsule right before or with your first bite of food. The enzymes will not work as well if you take the first capsule at the end of your meal.
- If you are prescribed a second capsule, take it halfway through your meal.
- If you are prescribed a third capsule, take it at the end of your meal.
- If you prescribed more than 3 capsules, talk with your clinical dietitian nutritionist about when to take them.

How should I take PERT?

- **Swallow the capsules with a cold or room temperature liquid.** The enzymes in the capsules stop working if they get too hot. You can take them with hot meals. **Do not take them with hot liquids.**
- **Do not chew, break, or crush the capsules**. This can hurt your mouth. The capsules can be large and sometimes hard to swallow.
- **If you're having trouble swallowing the capsules, you can:**
    - Open the capsules. Mix the enzymes with 1 tablespoon of food that does not need to be chewed and can be swallowed right away. These foods include applesauce, yogurt, mashed banana, or baby food fruit purées. **Do not let the enzymes stay in your mouth.** Drink liquids right away to make sure you swallow all the enzymes.

Which foods should I take PERT with?

- **Take PERT with meals and snacks** that have fat or protein, such as milk or protein shakes.
- You do not need to take PERT if you are only eating or drinking the following:
    - Food or drinks that have pure sugars, such as fruit juice or hard candies.
    - Small bite-sized snacks.
    - Clear drinks with less than 1 teaspoon of milk or creamer.
- **Your healthcare provider may prescribe a higher dose of PERT with larger meals or meals that are higher in fat.Do not change your PERT dose without talking with your healthcare provider or clinical dietitian nutritionist.**

How do I know if I'm taking enough PERT?

You should see a change in how your poop looks. It should be more solid and flush away easily. You should not have any pain after eating. You should have less gas. You may gain some weight.

Do not stop taking PERT without talking with your healthcare provider. This can affect your nutrition.

What if I still have symptoms after taking PERT?

You may still have gas, bloating, and other symptoms of malabsorption while taking PERT.

Talk with your healthcare provider or clinical dietitian nutritionist if you still have symptoms. You may need an adjustment to your PERT dose or how often you take it.

What are side effects of taking PERT?

Often, you will not have side effects after taking PERT. In rare cases, children who take high doses can develop fibrosing colonopathy (large bowel disease). Symptoms include severe abdominal pain, vomiting (throwing up), and bloody diarrhea (loose poop).

The enzymes may irritate your mouth if you chew them or hold them in your mouth for too long.

Who should not take PERT?

PERT has pork products. If you are allergic to pork or follow a vegan, vegetarian, Halal, or Kosher diet, you may need to take a plant-based enzyme replacement therapy.

Talk with your healthcare provider or clinical dietitian nutritionist about your allergy or food restrictions to decide if PERT is right for you.

Talk with your religious leader about a medical exception if you follow a Kosher or other diet that avoids pork.

How can I stay at the same weight or gain weight?

Your body may not absorb all the nutrients from the foods you eat if your pancreas does not make enough enzymes. This can cause weight loss.

Taking the right dose of PERT at the right time can help you digest your food and absorb nutrients. It can also allow you to include high-calorie, high-fat foods in your diet to help you maintain or gain weight.

If you have symptoms of malabsorption, talk with your healthcare provider or clinical dietitian. Your PERT dose may need to be adjusted.

Tips to maintain or gain weight:

- Eat smaller meals more often throughout the day.
- Eat solid food before drinking liquids. Liquids can make you feel full faster.
- Drink supplement drinks, smoothies, or shakes in between meals. Talk with your healthcare provider about which ones are right for you.
- Set a schedule or reminders for times to eat.
- Eat when you're feeling hungry.
- Add high-calorie sauces to your meals, such as barbecue sauce, ketchup, gravy, hummus, dressing, or sour cream.
- Eat breakfast items such as eggs, French toast, or pancakes at any time of day.

How can I add more calories and protein to my diet?

Tips to add extra calories to your food:

- Use full-fat dairy, such as butter, cream, whole milk, yogurt, cheese, or evaporated milk.

- Drizzle meals with olive oil.
- Add ice cream to desserts.
- Add nut butter to snacks.
- Add avocado, mayonnaise, sour cream, or other high-calorie condiments to crackers or sandwiches.
- Add dried fruit and nuts to oatmeal, cereal, muffins, cookies, or granola.
- Add whipped cream to pudding or custard.
- Add jam, jelly, or honey to crackers, toast, or desserts.

Tips to add extra protein to your food:

- Eat dairy, eggs, nuts, meat, fish, chicken, turkey, or beans.
- Add protein powders to shakes, smoothies, oatmeal, or cake batters.
- Eat a protein bar as a snack.
- Eat Greek yogurt instead of regular yogurt.
- Add seeds or nuts to salads, pastas, vegetables, oatmeal, and desserts.
- Eat crackers with cheese, avocado, or dips that have chicken, eggs, or tuna.
- Eat nuts and seeds, such as almonds, walnuts, peanuts, pistachios, sesame seeds, and pumpkin seeds.

For more on adding extra calories and protein to your diet, read *Eating Well During Your Cancer Treatment* (www.mskcc.org/pe/eating-cancer-treatment).

Financial support for PERT

Treatment with PERT can cost a lot of money. Some insurance plans do not cover the full cost of PERT. To help with the cost, MSK and many enzyme brands offer financial help. You can check their websites to see if you're eligible for support.

For more information, talk with your healthcare provider or clinical dietitian nutritionist. Here is a list of financial programs.

MSK prescription assistance program

Patient Financial Services (PFS) can help you apply for programs offered by drug companies and foundations. They can help cover the cost of co-pays for your prescription medications. To learn more about these programs, talk with your care team or clinical dietitian nutritionist. They can help you get in touch with a Patient Financial Navigator.

Programs for a brand of medication

- **AbbVie patient assistance (for Creon):** www.abbviepaf.org
- **Creon on Course:** www.creon.com/on-course
- **Vivus patient assistance (for Pancreaze):** pancreaze.com/patient-support
- **Allergan patient assistance (for Zenpep):** www.allergan.com/responsibility/patient-resources/patient-assistance-programs
- **Z-Save for Zenpep:** www.zenpep.com/savings-programs

Other financial support programs

- **Cancer Care:** www.cancercare.org/financial_assistance
- **NeedyMeds:** www.needymeds.org
- **PanCAN Patient Services:** www.pancan.org/facing-pancreatic-cancer/patient-services/contact-us

Pancreatic enzyme resources

For more information on managing your symptoms and dosing guidelines, visit pancreatic enzyme brand websites:

- **Creon:** www.creon.com
- **Pancreaze:** www.pancreaze.com
- **Pertzye:** www.pertzyecares.com
- **Zenpep:** www.zenpep.com

- Pancreatic Cancer Action Network (PANCAN)
  - www.pancan.org
  - www.pancan.org/facing-pancreatic-cancer/living-with-pancreatic-cancer/diet-and-nutrition/pancreatic-enzymes
  - 877-272-6226
- American Cancer Society
  - www.cancer.org/cancer/pancreatic-cancer.html
- National Pancreas Foundation
  - pancreasfoundation.org/patient-information/nutrition-advice-recipes

Contact information for nutrition services at MSK

You can visit our clinical dietitian nutritionists at our locations in Manhattan, by phone or telemedicine, and at these regional sites:

To schedule an appointment with a clinical dietitian nutritionist at any of our locations, contact our nutrition scheduling office at 212-639-7312.

> If you have questions or concerns, contact your healthcare provider. A member of your care team will answer Monday through Friday from 9 a.m. to 5 p.m. Outside those hours, you can leave a message or talk with another MSK provider. There is always a doctor or nurse on call. If you're not sure how to reach your healthcare provider, call 212-639-2000.

For more resources, visit www.mskcc.org/pe to search our virtual library.

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