

# Exocrine Pancreatic Insufficiency (EPI) Nutrition Therapy

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## What is exocrine pancreatic insufficiency (EPI)?

**Exocrine pancreatic insufficiency (EPI)** is a condition when your small intestine can't digest food completely. This happens when your pancreas is not able to produce or secrete (release) pancreatic enzymes that help you break down nutrients. Symptoms of EPI may include:

- Flatulence (farting)
- Stomach bloating
- Stomach cramping
- Frequent or urgent bowel movements (where you feel like you need to rush to the bathroom)
- Weight loss
- Stool (poop) that may be oily or greasy, bad-smelling, or floating in the toilet bowl

You can learn more about EPI at this website: [www.identifyepi.com/diet-and-lifestyle](http://www.identifyepi.com/diet-and-lifestyle)

## What should I eat and drink to help with EPI?

Following a well-balanced diet can:

- Prevent nutrient loss
- Help you stay at a healthy weight for you
- Balance your blood sugar levels (avoid both low and high blood sugar)
- Improve your general well-being

Along with the meal recommendations below, you may need to use oral supplements, vitamins, and enzymes to improve your nutrition and manage your EPI.

### **Eat a well-rounded diet**

Eating many different types of foods helps make sure that you are getting enough calories and nutrients. Based on the US Dietary Guidelines, eating goals for adults should typically be:

- **Grains:** 5-6 servings (1 ounce) each day.
  - 1 ounce is 1 slice of bread, 1 cup breakfast cereal, or ½ cup cooked pasta or rice.
- **Vegetables:** 2½-3 cups each day. Eat a variety of vegetables (especially dark green, red, and orange vegetables), beans, and peas.
- **Fruits:** 2 cups each day.
- **Protein foods (meat, poultry, fish, and beans):** 5-6 ounces each day.
  - 1 egg or ¼ cup beans counts as 1 ounce.
- **Dairy foods or plant-based alternatives:** 3 servings each day.
  - 1 serving is 1½ ounces of cheese, 1 cup milk, or 1 cup yogurt.
- Avoid all alcohol

### **Make sure that you are getting enough nutrients each day**

Follow the tips below to make sure you are getting enough nutrients:

- Eat small, high-protein meals often.
- Do not skip meals.
- Choose softer foods to help with stomach discomfort.
- Do not drink alcohol.
- Talk to your doctor about possibly taking nutritional supplements.
- Use a food log (a written diary or record) to record your meals and fluid intake (what you drink).

- Talk with your doctor or registered dietitian about any concerns.

### **Get your nutrient levels checked for nutrient deficiency**

People with EPI are more likely to have **malabsorption** (when your body can't absorb vitamins and minerals from your food), which can lead to you not getting enough vitamins and minerals. This is called a **nutrient deficiency**. Malabsorption can also cause low bone mass, which can lead to conditions such as osteopenia and osteoporosis.

We recommend you work with your providers to get blood work regularly, which will help you watch your nutrient levels. Some nutrients to look out for include:

- **Fat-soluble vitamins:** Fat-soluble vitamins, which include vitamins A, D, E and K, are stored in the fatty tissue and liver. These may be deficient (lacking) depending on how little fat is being absorbed by your body.
- **Vitamin D and calcium:** Vitamin D and calcium are really important vitamins for bone health. Vitamin D helps with the absorption of calcium, and both may be at higher risk for deficiency.
  - Doing weight-bearing exercises, such as walking and dancing, will also help you have good bone health!
- **Vitamin B12:** B12 is often found in animal products and it may be poorly absorbed by your body.

### **Eat and drink sources of fat throughout the day**

- Because EPI comes from a reduction in the proteins that help you digest and absorb fat (pancreatic enzyme secretions), you may have poor absorption of fat. Properly using pancreatic enzyme replacement therapy or PERT (you can read more about this later in this handout) can help you expand your diet options and eat fat throughout the day.

- Current research suggests that diets with extreme fat restrictions (eating very little or no fat) are not helpful and could cause more nutrient deficiency for people with EPI. Focus on eating a balanced diet that includes some fat.
- If you are not taking PERT or you just started PERT and you are still having symptoms of diarrhea or stomach pain, avoid very high fat foods (like ribs, sausage, hot dogs, fried foods, donuts, pastries, and biscuits). You can get enough fat without them, and avoiding them may help you manage your symptoms.
- Eat fat throughout the day during meals and snacks (instead of all at once) so your body can tolerate it. It may be helpful to check nutrition labels often and watch for any symptoms that your body isn't tolerating the fat (such as belly pain, bloating, etc.)

<b>Nutrition Facts</b>	
8 servings per container	
<b>Serving size</b>	<b>2/3 cup (55g)</b>
<hr/>	
Amount per serving	
<b>Calories</b>	<b>230</b>
<hr/>	
	% Daily Value*
<b>Total Fat</b> 8g	<b>10%</b>
Saturated Fat 1g	<b>5%</b>
Trans Fat 0g	
<b>Cholesterol</b> 0mg	<b>0%</b>
<b>Sodium</b> 160g	<b>7%</b>
<b>Total Carbohydrate</b> 37g	<b>13%</b>
Dietary Fiber 4g	<b>14%</b>
Total Sugars 12g	
Includes 10g Added Sugars	<b>20%</b>
<b>Protein</b> 3g	

Look for the **servicing size** to see how much you are consuming

Look for the **total fat grams** to see how much is in a serving

### **Eat and drink sources of fiber throughout the day**

- Fiber is a type of carbohydrate (a nutrient that gives your body energy) that the body can't digest. In general, we recommend adults to eat or drink 25-30 grams of fiber each day.
- Fiber is found in:
  - Fruits
  - Vegetables
  - Beans
  - Nuts
  - Seeds
  - Whole grain foods
- You don't have to eat a very low fiber diet when you have EPI. It's important that you have a good balance of fiber for your overall gastrointestinal (GI) health. If you feel you are having a hard time with fiber foods, talk with a registered dietitian or healthcare provider who can help you create a diet that will meet your nutritional needs while managing your EPI symptoms.

### **Consider taking oral supplements**

Keeping a stable weight is important for dealing with EPI through good eating. If you are losing weight that you didn't mean to lose, it's important to talk with your doctor or registered dietitian. It's best to focus on eating regular meals, but if you're not hungry or if you feel worse, your healthcare team might suggest a special nutrition supplement to help you get the right nutrients.

### **What is pancreatic enzyme replacement therapy (PERT)?**

**Pancreatic enzyme replacement therapy (PERT)** is the main treatment option for EPI. PERT is a prescription medication that can help your body break down food. You will take PERT before, during, and after each meal and snack to help you digest food.

Typically, the dose of PERT you take depends on the size of the meal or snack, so make sure to talk with your doctor or registered dietitian about how much to take and when. It's important to let them know of any symptom changes while you're on PERT to see if you need any changes to your dose.

**Sample 1-day menu:**

<b>Breakfast</b>	<ul style="list-style-type: none"> <li>• 6 ounces tomato juice</li> <li>• 4-inch oat bran bagel</li> <li>• 1 tablespoon cream cheese</li> </ul>	<ul style="list-style-type: none"> <li>• 1 egg</li> <li>• 1 cup skim milk</li> </ul> <p style="text-align: right;"><i>Meal fat content: 11 g</i></p>
<b>Lunch</b>	<ul style="list-style-type: none"> <li>• 2 ounces turkey breast</li> <li>• 2 leaves lettuce</li> <li>• 2 slices tomato</li> <li>• 1 tablespoon mayonnaise</li> <li>• 1 teaspoon mustard</li> </ul>	<ul style="list-style-type: none"> <li>• 2 slices of wheat bread</li> <li>• 1 cup carrots</li> <li>• ½ cup pineapple</li> <li>• 1 cup skim</li> </ul> <p style="text-align: right;"><i>Meal fat content: 12 g</i></p>
<b>Snack</b>	<ul style="list-style-type: none"> <li>• 1 cup blueberries</li> </ul>	<ul style="list-style-type: none"> <li>• 1 cup 2% milk</li> </ul> <p style="text-align: right;"><i>Meal fat content: 5 g</i></p>
<b>Dinner</b>	<ul style="list-style-type: none"> <li>• 3 ounces tilapia</li> <li>• 2 slices polenta</li> <li>• ½ cup sliced zucchini</li> <li>• 1 whole wheat roll</li> </ul>	<ul style="list-style-type: none"> <li>• 1 teaspoon margarine</li> <li>• ½ cup 2% greek frozen yogurt</li> <li>• 1/4 cup sliced strawberries</li> <li>• Hot tea</li> </ul> <p style="text-align: right;"><i>Meal fat content: 9 g</i></p>

Total fat content: 37 grams

**Sample vegetarian 1-day menu:**

<b>Breakfast</b>	<ul style="list-style-type: none"> <li>• 1 cup cooked oatmeal</li> <li>• 1 ounce almonds</li> </ul>	<ul style="list-style-type: none"> <li>• 1 cup blueberries</li> <li>• 1 cup plant-based milk of choice</li> </ul> <p style="text-align: right;"><i>Meal fat content: 20 g</i></p>
<b>Lunch</b>	<ul style="list-style-type: none"> <li>• 1 cup kidney beans</li> <li>• 2 cups lettuce</li> <li>• 2 slices tomato</li> <li>• 1 cup carrots</li> </ul>	<ul style="list-style-type: none"> <li>• 2 tablespoons low-fat Italian dressing</li> <li>• 1 slice whole wheat bread</li> <li>• ½ cup pineapple</li> </ul> <p style="text-align: right;"><i>Meal fat content: 5 g</i></p>
<b>Snack</b>	<ul style="list-style-type: none"> <li>• 1 apple</li> </ul>	<ul style="list-style-type: none"> <li>• 1 cup plant-based milk of choice</li> </ul> <p style="text-align: right;"><i>Meal fat content: 4 g</i></p>
<b>Dinner</b>	<ul style="list-style-type: none"> <li>• ½ cup meatless chicken</li> <li>• 2 slices polenta</li> <li>• ½ cup tomato sauce</li> <li>• ½ cup mushrooms</li> <li>• ½ cup zucchini</li> </ul>	<ul style="list-style-type: none"> <li>• 1 whole wheat roll</li> <li>• 1 teaspoon margarine</li> <li>• ½ cup frozen yogurt</li> <li>• ¼ cup strawberries</li> </ul> <p style="text-align: right;"><i>Meal fat content: 8 g</i></p>

Total fat content: 37 grams

## Sample vegan 1-day menu:

<b>Breakfast</b>	<ul style="list-style-type: none"> <li>• 1 cup cooked oatmeal</li> <li>• 1 ounce almonds</li> </ul>	<ul style="list-style-type: none"> <li>• 1 apple</li> <li>• 1 cup plant-based milk of choice</li> </ul> <p><i>Meal fat content: 20 g</i></p>
<b>Lunch</b>	<ul style="list-style-type: none"> <li>• 1 cup kidney beans</li> <li>• ½ cup corn</li> <li>• 2 cups lettuce</li> <li>• 2 slices tomato</li> </ul>	<ul style="list-style-type: none"> <li>• 1 cup carrots</li> <li>• 1 tablespoon low-fat Italian dressing</li> <li>• 1 cup plant-based milk of choice</li> </ul> <p><i>Meal fat content: 6 g</i></p>
<b>Snack</b>	<ul style="list-style-type: none"> <li>• 1 orange</li> </ul>	<ul style="list-style-type: none"> <li>• 1 ounce pumpkin seeds</li> </ul> <p><i>Meal fat content: 15 g</i></p>
<b>Dinner</b>	<ul style="list-style-type: none"> <li>• ¾ cup meatless meatballs</li> <li>• 2 slices polenta</li> <li>• ½ cup tomato sauce</li> <li>• ½ cup mushrooms</li> </ul>	<ul style="list-style-type: none"> <li>• ½ cup zucchini</li> <li>• 1 teaspoon olive oil</li> <li>• 1 whole wheat roll</li> <li>• 1 cup strawberries</li> </ul> <p><i>Meal fat content: 15 g</i></p>

Total fat content: 56 grams

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