

Pancreatic Enzyme Replacement Therapy (PERT) for Children and Adolescents with Cystic Fibrosis

What is Pancreatic Enzyme Replacement Therapy (PERT)?

PERT are small 'beads' that contain digestive enzymes. Each bead is covered in a special coating that releases the enzymes in the small intestine. These enzymes help digest and absorb nutrients (including fat, protein and carbohydrate) from food. This helps give the body energy and improve weight gain, growth, and bowel movements.

Who needs PERT?

PERT is essential for everyone with Cystic Fibrosis (CF) with pancreatic insufficiency. This means your pancreas cannot make enough enzymes to digest food and absorb nutrients. Without PERT, children are at high risk of poor nutrient absorption leading to poor growth and slow weight gain.

How much PERT does my child need?

PERT doses are based on how much fat is in the food and fluid that you eat and drink. However, one person with CF may need different amounts of PERT to another. Talk to your dietitian and CF team about your doses before making any changes. .

The most common PERT strengths in Australia are Creon® Micro, 10,000 and 25,000.

A guide for enzyme dosing is:

- Creon Micro: 1 scoop covers 3 – 5g of fat.
- Creon 10,000: 1 capsule covers 6 – 8g of fat.
- Creon 25,000: 1 capsule covers 15g of fat.



Tip: It is better to give a little extra PERT, rather than not enough. For example, if a food has 10g of fat, give 2 capsules of Creon 10,000, rather than 1 capsule. Ask your dietitian about your maximum recommended dose if you are concerned.

Am I having enough PERT?

Signs you or your child are having enough PERT:

- Bowel movements are more formed, return to their usual colour and flush away easily.
- No stomach pain, excessive bloating, or gas after eating.
- Good weight gain and growth.

Signs you or your child are not having enough PERT:

- Frequent, loose and/or oily stools.
- Stomach pain, excessive bloating, or gas.
- Poor weight gain and growth.

Talk to your doctor or dietitian if you or your child are showing signs of not having enough PERT.

How is PERT given?

For infants, beads will be given mixed in breastmilk, formula or fruit puree. As your child gets older and learns to swallow tablets, PERT will be given in capsule form. Capsules and beads should not be crushed or chewed.

When should PERT be taken?

- Take PERT at the start of meals, snacks and drinks that have fat.
- If you forgets to take it at the start, take PERT during or at the end of the meal.
- Give another dose of PERT if eating or drinking for longer than 30 minutes. This is because enzymes only last 30 minutes in the small intestine.

Are there any foods and fluids that don't need enzymes?

While enzymes doses are based on the fat in food, enzymes also work on carbohydrate and protein. Enzymes need to be taken with **ALL** food and fluids. The only exception is foods that contain mainly simple carbohydrates, with little to no fat or protein. For example:

- Fresh, dried and canned fruit.
- Non-starchy salad vegetables (not cooked in oil or butter).
- Lollies, jellies, sorbet, chewing gum.
- Water, fruit juice, soft drink, cordial, electrolyte replacement drinks.

How should enzymes be stored?

- Store enzymes in a cool, dry place. Enzymes deteriorate in hot or damp places, such as above your fridge, in the car or in a school bag. Discard enzymes exposed to heat.
- When leaving the house, take enzymes in a cooler bag with an ice brick. Use a towel to prevent the PERT from getting damp as the ice brick melts.
- Always check the expiry date of your enzymes, discard enzymes that are out of date.
- Keep the lid tightly sealed on the bottle of enzymes.
- Discard enzymes that have changed colour or texture.

Reading nutrition information panels

Understanding how to read the **nutrition information panel** on food labels is important. These labels contain information for the total fat, and types of fat in the food (e.g. saturated). It is important to refer to total fat for working out PERT doses.

You can use either total fat per serving or per 100g. For the example below we will use per serve, which is best when eating whole items, such as biscuits.

Example PERT dosing

On the right is the nutrition information panel of a biscuit.

1 serve is 1 biscuit. 1 biscuit has 4.7g of fat.

If you ate one biscuit you would need 1 capsule of Creon 10,000.

If you ate 2 biscuits: $2 \times 4.7\text{g fat} = 9.4\text{g fat}$.

Therefore, you would need 2 capsules of Creon 10,000. Remember, it is better to give a little extra Creon, rather than not enough.

Nutrition Information		
Servings per package: 1		
Serving size: 1 biscuit		
	Average Quantity Per Serving	Average Quantity Per 100g
Energy	428 kJ (102Cal)	2060kJ (493Cal)
Protein	0.7g	3.3g
Fat, total	4.7g	22.6g
- saturated	2.4g	11.4g
Carbohydrate	14g	67.9g
- sugars	7.7g	37.1g

Speak with your dietitian for support reading food labels and PERT dosing.