

Enzymes for CF Children

Pancreatic Sufficient

If your child is pancreatic sufficient, their body is able to produce and release enough digestive enzymes to breakdown and digest food. They will not need medication to assist with digestion.

Pancreatic function may reduce over time, and it is important it is reassessed if there are signs of malabsorption, a decline in nutritional status or a fat-soluble vitamin deficiency.

Regular input with their dietitian is required to monitor symptoms and provide dietary advice to meet individual nutritional requirements for growth and development.

Pancreatic Insufficient

Around 90% of children with CF are pancreatic insufficient. This means the pancreas is unable to produce or release enough digestive enzymes resulting in malabsorption of fat, protein, bile and fat-soluble vitamins. If your child is pancreatic insufficient, they will need to take replacement enzymes with most foods to help them absorb the energy and nutrients contained in the food.

The main goals of treating pancreatic insufficiency include:

- Optimising intake and nutrient absorption
- Controlling malabsorption symptoms
- Improving weight gain and growth
- Preventing nutritional deficiencies



Administering Enzymes

Enzymes need to be taken with food containing fat, carbohydrate or protein. Enzymes are most effective for 30 minutes, so if your child takes longer than 30 minutes to eat, spread the dose throughout the meal or snack.

Young children take Creon Micro until they learn to swallow capsules. Once they have learned to swallow tablets, they will be able to take Creon 10 000. These capsules need to be swallowed whole. The outer capsule protects the enzymes from gastric acid, and should not be chewed, crushed, or mixed with hot food.

Enzyme Dosages

Enzymes come in different strengths. The dose your child is on will be decided by your child's CF dietitian and depends on their age, weight, level of pancreatic function, types/amounts of food they eat, and signs and symptoms of malabsorption. When dosing enzymes the goal is to aim for the lowest effective dose. Below is a guide of enzymes required according to the amount of fat in food and drinks. The dietitian will advise on specific doses appropriate for your child.

| | |
|-------------------------------------|------------|
| 1 x scoop Creon Micro (Creon 5 000) | ~4g fat |
| 1 Creon 10 000 | ~6-8g fat |
| 1 Creon 25 000 | ~15-20 fat |

To work out the dose for a particular meal or snack, you need to calculate the amount of fat in the food. There are some apps such as 'Easy Diet Diary' or 'Calorie King' to assist you.

Labels on food packaging can be a helpful tool when working out how much fat is in a food. On the Nutrition Information Panel, look at 'Total Fat' in the 'per serving' column.

The table below is an example for a Muesli Bar. One bar contains 4.3g of fat. Your child would need to take 1 scoop of Creon 5 000 to cover the fat contained in one muesli bar.

| Servings per pack: 6 Serving size: 31.3g (per bar) | Average quantity per serving | Average quantity per 100g |
|---|------------------------------|---------------------------|
| Energy | 550kj | 1770kJ |
| Protein | 1.9 | 6.1g |
| Fat-Total | 4.3g | 13.7g |
| -saturated | 1.4g | 4.4g |
| Carbohydrates | 20.5g | 65.4g |
| -sugars | 6.7g | 21.3g |
| Dietary Fibre | 2.0g | 6.5g |
| Sodium | 4mg | 13mg |

What if I forget to give my child enzymes?

Don't panic if you forget to give your child enzymes. They may experience some tummy pain and or diarrhea/malabsorptive stools, but this will ease. If enzymes are not given regularly, over time their growth, weight, macro- and micro-nutrient absorption will be impacted.

Enzymes and Meal Refusal

If your child refuses a meal, it is best to wait until the next meal or snack time before offering something new, even if enzymes have already been given. Enzymes given without food occasionally will not harm your child. If food refusal is frequent, it may be helpful to give a small enzyme dose at the start, and if the meal is eaten, give more during the meal.

Malabsorption

The effectiveness of enzymes should be routinely monitored by your child's CF care team. Weight gain is generally a good indicator of how well the enzymes are working. It is important to monitor your child's poos and note any symptoms such as:

- Abdominal pain, discomfort or excessive wind
- Constipation or diarrhoea
- Changes in stool colour
- Floating stools
- Mucous in stool
- Oily stools
- Poor weight gain and/or growth
- Very foul-smelling bowel movements

If your child is frequently experiencing signs of malabsorption, speak with your child's CF care team.

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