

## **Pancreatic Insufficiency and Enzymes**

The pancreas is an organ of the body that has many functions. One function is to produce and secrete digestive enzymes. Digestive enzymes are needed in the right amounts to digest foods properly. About 90% of people with CF have a pancreas that produces quantities of digestive enzymes that are too small to digest all the food eaten. We can tell if your child or you have insufficient enzymes by a Fecal Elastase Test. This is a simple test on a small piece of stool (or poop)! A low fecal elastase level means you or your child will need help digesting foods. Individuals with low fecal elastase levels are pancreatic insufficient. This condition is treated by enzyme replacement therapy.

Symptoms of pancreatic insufficiency with malabsorption may include:

- Frequent loose stools, large stools, oil in the stool
- Excessive gas
- Very large appetite with poor weight gain
- Stomach pain

Enzyme replacement therapy given before each meal or snack corrects or minimizes symptoms. All foods except very simple carbohydrates (such as fruits, fruit juices, electrolyte replacement fluids) need to come in contact with enzymes in the small intestine to make sure digestion and absorption of proteins, carbohydrates, fats, vitamins, minerals and other nutrients takes place. The goal of enzyme replacement therapy is to ensure the correct dose of enzymes is present to break foods down into small enough particles so nutrients are available to the body.

**In summary, pancreatic enzyme replacement therapy makes it possible for most people with CF to eat a normal amount of food, digest it properly absorb the nutrients for the purpose of achieving normal growth and a healthy body.**

Understanding some basics about enzymes will make meal times for you and your child simple, and more pleasant and effective. The most effective pancreatic enzymes are packaged as micro-tablets and micro-spheres. The enzymes are inside these tiny beads. These beads have an acid resistant coating. This coating protects the enzymes from digestive juices in the stomach. It is very important that this protective coating is not crushed or damaged when given to your child.

Enzymes for infants work best when sprinkled on a small spoon of baby applesauce and given immediately before a feeding. Do not mix enzymes with applesauce ahead of time for use later that day as this will damage the protective coating. Care must be taken to ensure no beads remain in the mouth after feeding as these will cause sores to develop. Older infants and children should not bite or chew enzymes. Doing so will irritate their mouths and make feeding painful. In addition, enzymes that are exposed to stomach acid will be much less effective resulting in food that is poorly digested and malabsorbed.

**Giving the correct dose of enzyme at the beginning of each meal, snack or milk will give your child or you a better chance of growing normally and staying healthy.**