

For more information about CFRD, please contact:

# Cystic Fibrosis-Related Diabetes (CFRD)

What is it?

What are the causes?

What are the symptoms?

How is it diagnosed?

What is the treatment?



## What is Cystic Fibrosis-Related Diabetes?

Cystic Fibrosis-Related Diabetes (CFRD) is a unique type of diabetes. It is not the same as diabetes in people without CF. The diagnosis and treatment is not exactly the same. CFRD is extremely common in people with CF especially as they get older. CFRD is found in 35% of adults aged 20-29 and 43% for those over 30 years old.

### Causes of CFRD

There are 2 types of diabetes in the non-CF population - **Type I diabetes** (known as “insulin-dependent diabetes”) and **Type II diabetes** (known as “non-insulin dependent diabetes”). In people with Type I diabetes, the pancreas is unable to make insulin. Type II diabetes is caused by the body’s lack of response to insulin produced by the pancreas, sometimes called insulin resistance. Insulin is a hormone that moves nutrients, like sugars, from the blood stream into the cells. The cells use the sugars for energy.

CFRD has some features of both types of diabetes. People with CF do not make insulin. This is a result of scarring in the pancreas. Insulin resistance is another reason people develop CFRD. Insulin resistance means your body does not use insulin normally. More insulin is required to metabolize food. Insulin resistance is caused by chronic underlying infections. Another cause is high levels of cortisol. Cortisol is a steroid produced in the adrenal glands of the body. Cortisol levels in the body increase in response to stress, like an infection. Increased cortisol levels interfere with insulin levels in the body, thus increasing a person’s blood sugar.

### Symptoms of CFRD

Common symptoms, such as increased thirst and increased urination, are caused by high blood sugar levels (hyperglycemia). Other symptoms of CFRD are excessive

fatigue, weight loss and unexplained decline in lung function.

### Screening and Diagnosis

Initial screening for CFRD is simple. Blood tests are obtained annually as part of the standards of care for all people with CF. One of the blood tests includes a random glucose level. If the random glucose level is greater than 125mg, additional testing and evaluation will be done. A fasting blood sugar will be obtained. If the fasting blood sugar is greater than 125 mg on two or more mornings, a 2 hour oral glucose tolerance test is done. If the glucose level 2 hours after the test begins is 200mg or greater the patient is diagnosed with CFRD. Treatment and regular glucose monitoring will be initiated. (A random glucose level is done any time during the day; timing is not related to meals. A fasting glucose is obtained early in the morning when a person has not eaten for at least 8 hours.)

### Treatment of CFRD

Insulin is currently the only medication that has proven effective for treatment. Insulin can only be given by injection. Insulin allows sugars provided by the carbohydrates that you eat to be passed from your blood stream to the body’s cells where it is used for energy. Insulin also allows the cells of the body to take up proteins from the food we eat. Proteins help build muscle tissue. If there is not enough insulin in the body, muscle is lost. Loss of muscle can affect your breathing. Insulin allows fat in our diet to be stored in the body as body fat. Without enough insulin, fat stores are used up and weight loss occurs.

Maintaining blood glucose levels at a normal level with the help of insulin may help you gain weight, feel better and have more energy.