

Short Chain Acyl-CoA Dehydrogenase Deficiency (SCAD)

What is SCAD?

Short-Chain acyl-CoA dehydrogenase deficiency (SCAD) is a condition in which the body is unable to break down certain fats. SCAD is considered a fatty acid oxidation condition because people affected by the condition are unable to change some of the fats they eat into energy the body needs to function. Most individuals who are identified as having SCAD never experience symptoms, while some individuals may experience serious health effects. Detecting the condition early and beginning treatment may help prevent many of the serious outcomes of SCAD.

What Causes SCAD?

When we eat food, enzymes help break it down. Some enzymes break down fats into their building blocks called fatty acids. Other enzymes break down these fatty acids. The enzyme short-chain acyl-CoA dehydrogenase helps break down fatty acids. Fatty acids are built like chains and they come in a variety of lengths. They are categorized as either short, medium, long, or very long. Short-chain acyl-CoA dehydrogenase specializes at breaking down short length fatty acid chains for energy. If you have a question about what makes a “short” fatty acid, read further information at www.babysfirsttest.org.

What Symptoms or Problems Occur with SCAD?

[Symptoms are something out of the ordinary that a parent notices.]

Each child with SCAD has a different experience. Your baby may show signs of SCAD, but many babies with SCAD never show any signs. In babies, the signs of SCAD include:

- sleeping longer or more often
- behavior changes
- irritable mood
- poor appetite
- trouble breathing
- seizures
- delayed growth and weight gain
- developmental delays
- hyperactivity
- weak muscle tone (known as hypotonia)
- small head size
- low blood sugar (called hypoglycemia)

Many of these signs may occur when your baby eats food that his or her body cannot break down. They can be triggered by long periods of time without eating, illnesses, and infections. If your baby shows any of these signs, be sure to contact your baby’s doctor immediately.

What is the Treatment for SCAD?

1. Dietary Treatment - Your baby may need to be on a restricted diet to avoid foods that contain fats that his or her body cannot break down. A dietician or nutritionist can help you plan a healthy diet for your baby. Eating often can help avoid many of the signs mentioned in the Symptoms or Problems section.

2. Supplements and Medications - Some children with SCAD take prescription L-carnitine supplements. L-carnitine is a substance naturally made by the body, but your baby’s body might not make enough of it. Taking L-carnitine supplements can help the body break down fats and get rid of harmful substances. Your baby’s doctor will need to write a prescription for these supplements.

Your doctor might also prescribe riboflavin (Vitamin B12) supplements.

Things to remember:

Children who are treated early for SCAD can have healthy growth and development. This is why newborn screening is so important.

With treatment, children may still develop learning delays, muscle weakness, or liver trouble. Most children with SCAD will not have difficulties and may not need treatment.

It is currently unknown how effective treatments are in preventing signs of SCAD.