

Sickle Cell Trait

“Trait” is a word used to describe a person who has inherited one abnormal gene from one parent and a normal gene from the other parent. A person with sickle cell trait inherits one gene to make normal hemoglobin (A) and another gene to make some sickle cell hemoglobin (S). Hemoglobin is the part of the red blood cell that carries oxygen to different parts of the body. Sickle cell trait (AS) usually does not cause any health problems. Often people don’t even know they have the trait. Sickle cell trait is found in 1 out of every 11 African Americans, but it can occur in people of any race or background.

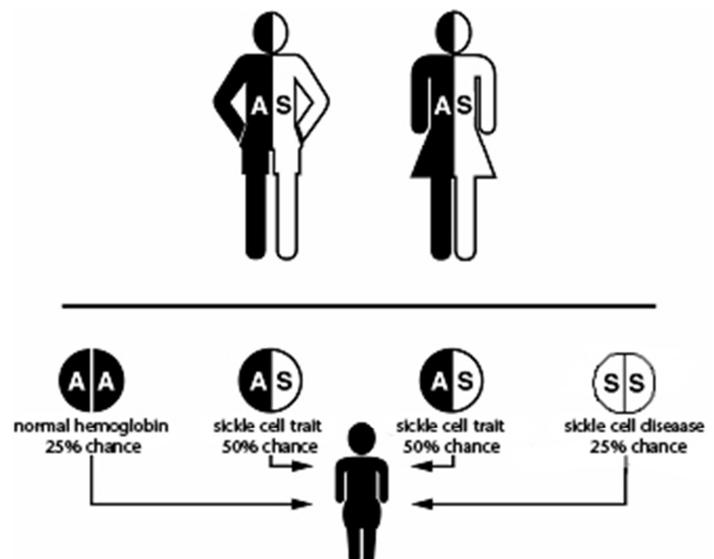
Why You Should Know if You Have Sickle Cell Trait

Our genes determine the color of our eyes, our blood type and many other features, including our hemoglobin type. We inherit one gene for hemoglobin from each of our parents. Each of our parents has two genes for hemoglobin, but they pass only one of these genes on to each child. To inherit *sickle cell trait*, a child must get the sickle (S) gene from one parent and a normal gene (A) from the other parent. (Picture 1)

If a child inherits the sickle (S) gene from one parent and a sickle (S) or other abnormal hemoglobin gene* from the other parent, the child will have *sickle cell disease*.

Even though sickle cell *trait* does not usually cause health problems, sickle cell disease is very serious. That is why it’s important to know if you and your partner have sickle cell trait. If both parents carry the trait, there is a 25% chance with EACH pregnancy of having a child with sickle cell disease

*Beta thalassemia, C, and E are other types of abnormal hemoglobin genes.



Picture 1 There is a 50 % chance with EACH pregnancy of having a child with sickle cell trait if both parents carry the trait.

Sickle Cell Disease

A person with sickle cell disease makes a different kind of hemoglobin called “sickle” hemoglobin. Instead of being round and smooth, cells with sickle hemoglobin become hard and sticky and look like a banana or a sickle. These cells have trouble moving through small blood vessels. Sometimes they clog up these blood vessels. This prevents the blood from bringing oxygen to the tissues. It can cause pain or damage to the areas that are not getting oxygen.

Does Sickle Cell Trait make you sick?

People who have sickle cell trait also make sickle hemoglobin, but *not as much* as people with sickle cell disease. They don’t have enough sickle hemoglobin for the cells to become sickle-shaped easily.

Sickle cell trait is NOT a disease and will never turn into a disease. People with sickle cell trait usually do not have any health problems. However, under extreme conditions a person with sickle cell trait can experience some of the same problems as a person who has sickle cell disease. These extreme conditions include:

- High altitudes
- Deep-sea or scuba diving
- Severe dehydration (too little water in the body)
- Low oxygen (mountain climbing or exercising extremely hard, such as in military boot camp or when training hard for an athletic event)

For more information about sickle cell trait, contact the Sickle Cell Newborn Screening Coordinator at Nationwide Children's Hospital at 614-722-5948. The Sickle Cell nurse is also available to answer questions between 8:00 a.m. to 4:30 p.m., Monday through Friday at 614-722-8914.