

# WHAT IS SICKLE CELL TRAIT?

People have sickle cell trait when they inherit a copy of the sickle cell gene from one parent and a copy of the gene for normal hemoglobin, called hemoglobin A, from the other. People who have sickle cell trait make about 60 percent normal hemoglobin (hemoglobin A), and about 40 percent sickle hemoglobin (hemoglobin S). They may be called carriers because they can pass on the gene for sickle hemoglobin when they have children.

## Is sickle cell trait the same as sickle cell disease?

No, they are different. Sickle cell disease is a blood disorder that affects the shape of red blood cells and can cause episodes of pain, anemia, and other problems. Most people with sickle cell trait have no symptoms and usually carry on normal lives. Sickle cell trait does not lead to sickle cell disease.

Also, while people with sickle cell trait have only one copy of the sickle cell disease gene, people with sickle cell disease either have two copies of the sickle cell gene, or one copy of the sickle cell gene and another faulty hemoglobin gene. However, people with sickle cell trait can pass their sickle cell gene down to their children. If both parents have sickle cell trait, there is a greater chance that one or more of their children will be born with sickle cell disease.

## Who is affected by sickle cell trait?

Anyone can have sickle cell trait, but it is most common among people with African, Middle Eastern, Mediterranean, or South Asian ancestry.

- More than 2 million people in the United States and about 1 in 13 Black babies born in the United States have sickle cell trait.
- Sickle cell disease, on the other hand, affects more than 100,000 people in the United States and 9 out of 10 of those people are of African ancestry or identify as Black.



## How do I know if I have sickle cell trait?

In the United States babies are screened for many inherited conditions including sickle cell disease and sickle cell trait as part of the newborn screening program at a state newborn screening lab.

- Within the first 24-48 hours after birth, a baby's heel is pricked and a few drops of blood are collected onto a special paper card.
- If the screening test is positive, the baby's doctor will order more tests to find out for sure if the baby has sickle cell trait or sickle cell disease and offer genetic counseling if needed.

For more information about newborn screening labs, visit [www.cdc.gov/newborn-screening](http://www.cdc.gov/newborn-screening).

If you are unsure of your sickle cell status, talk to your healthcare provider to find out if you may need to be tested.



**Blood Diseases & Disorders Education Program**

[sicklecell.nhlbi.nih.gov](http://sicklecell.nhlbi.nih.gov)

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## What health problems might people living with sickle cell trait have?

Sickle cell trait almost never causes serious medical problems, but in rare cases some people can experience complications such as damage to their kidneys or spleen. They also may be at increased risk of developing blood clots, and they are at a higher risk of developing complications if they experience an eye injury.

A person with sickle cell trait is more likely to have complications if their body needs more oxygen than usual, such as when they engage in intense physical activity, become dehydrated, are active at high elevations, or are exposed to extreme hot or cold temperatures. Tell your healthcare provider if you experience pain at high altitudes or notice dark colored urine.

## How can people living with sickle cell trait take care of their health?

Whether you have sickle cell trait or not, it's important to be proactive about your overall health. Make sure you:

- Drink plenty of water
- Eat a healthy diet
- Exercise regularly
- Get enough sleep
- Manage stress
- Do not smoke



For more information, visit [nhlbi.nih.gov/health/sickle-cell-disease/sickle-cell-trait](https://nhlbi.nih.gov/health/sickle-cell-disease/sickle-cell-trait)