

## WHAT IS SICKLE CELL TRAIT?

Sickle cell trait (SCT) is an inherited condition that affects the hemoglobin in red blood cells. Hemoglobin is the part of the red blood cell that carries oxygen from the lungs to other parts of the body. There are many different types of hemoglobin. The type of hemoglobin a person has depends on the genes passed down from both parents. Genes can determine things like gender or eye color.

Normal hemoglobin is called hemoglobin A and one type of abnormal hemoglobin is hemoglobin S. A person with sickle cell trait has inherited a normal hemoglobin A gene from one parent, and an abnormal hemoglobin S gene from the other parent.

Sickle cell trait is not a disease. Most people with sickle cell trait do not have any health problems. However, there are rare cases where individuals with sickle cell trait have experienced physical problems at high altitudes or in places where oxygen levels are low, like scuba diving.

## WHAT IS SICKLE CELL DISEASE?

Sickle cell disease (SCD) is the most common genetic, blood disorder in the United States. It is a serious, lifelong disease that can be life-threatening.

It is an inherited disorder that affects hemoglobin in red blood cells. Normal red blood cells are soft, round and can squeeze through blood vessels. Sickle cell disease causes the red blood cells to become stiff and sickle shaped (crescent shaped). This makes it difficult for the red blood cells to move through blood vessels. When sickled cells block blood vessels, less blood can reach that part of the body, and this can damage tissues and organs. This causes severe pain episodes.

Sickle cell disease is not contagious. You can only inherit it if both parents pass it on to you. If you were not born with sickle cell disease you cannot get it later in life.

Sickle cell disease can be found in people of African, Asian, Caribbean, Indian, Mediterranean, Middle Eastern, South and Central American descent.

In the United States, an estimated 100,000 people have sickle cell disease.

## WHAT IS THE DIFFERENCE BETWEEN SCT & SCD?

Sickle cell trait is not sickle cell disease. Most people with sickle cell trait do not have any health problems because of sickle cell trait. People with sickle cell disease have serious medical complications.

## WHY IS SCT IMPORTANT?

If you have trait, you are at risk of having a child with sickle cell disease. Sickle cell disease is a constant, painful, life-shortening illness.

## WHO DOES SCT AFFECT?

Sickle cell trait can be found in people of African, Asian, Caribbean, Indian, Mediterranean, Middle Eastern, South and Central American descent. About 1 in 10 African Americans have sickle cell trait.

People with sickle cell trait will never get the disease, but they carry a gene that could result in having a child with sickle cell disease.

## **HOW IS SICKLE CELL INHERITED?**

There are several possibilities for children whose parents have sickle cell trait or sickle cell disease.

**If one parent has sickle cell trait and the other parent has normal hemoglobin, the chances for each pregnancy are:**

- 1 in 2 (50%) that the baby will have normal hemoglobin.
- 1 in 2 (50%) that the baby will have the sickle cell trait.

**If both parents have sickle cell trait, the chances for each pregnancy are:**

- 1 in 4 (25%) that the baby will have normal hemoglobin.
- 2 in 4 (50%) that the baby will have sickle cell trait.
- 1 in 4 (25%) that the baby will have sickle cell disease.

**If one parent has sickle cell trait and the other parent has sickle cell disease, the chances for each pregnancy are:**

- 1 in 2 (50%) that the baby will have sickle cell trait.
- 1 in 2 (50%) that the baby will have sickle cell disease.

**If one parent has sickle cell disease and the other parent has normal hemoglobin, the chances for each pregnancy are:**

- 4 in 4 (100%) that the baby will have sickle cell trait.

**If both parents have sickle cell disease,**

- 4 in 4 (100%) that the baby will have sickle cell trait.

## **HOW DO I GET TESTED?**

A simple blood test called a hemoglobin electrophoresis can determine if a person has sickle cell trait or disease. Ask your health care provider for more information about testing and genetic counseling services. All babies born in the United States are tested at birth as part of newborn screening, and your doctor may have your results in your medical record.