

Sickle Cell Trait: A Guide to Your Healthy, Active Life

The First Thing to Know: Sickle Cell Trait is Not a Disease.



SICKLE CELL TRAIT IS

- A genetic carrier state where you have one normal and one sickle hemoglobin gene.
- A common and manageable condition.
- Compatible with a normal, healthy lifespan.



SICKLE CELL TRAIT IS NOT

- Sickle Cell Disease.
- A daily illness that causes pain crises or anemia.
- A reason to limit your life or opportunities.

How People Learn They Have Sickle Cell Trait

Many people learn they have SCT through routine screening programs. The goal of these programs is to provide education and prevention advice, not to limit opportunities.



Newborn
screening



Screening for
athletics



Military
entrance testing



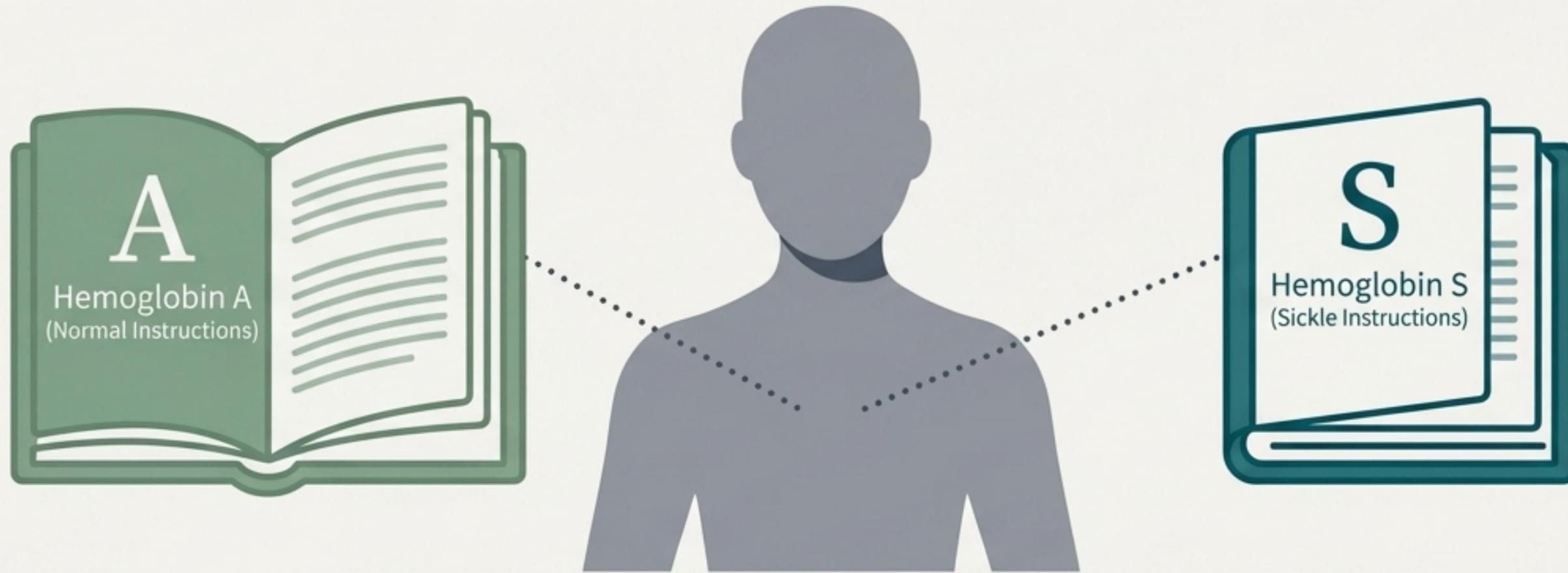
Pregnancy or
fertility testing



Routine
blood work

Your Genes: The Two Instruction Books for Hemoglobin

Think of your genes as two instruction books for making hemoglobin—the protein in your red blood cells that carries oxygen.



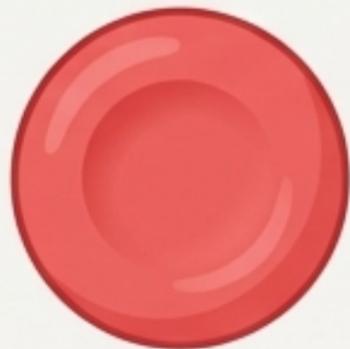
With Sickle Cell Trait, you have one copy of each book. Under usual conditions, the normal 'A' book provides enough guidance for your red blood cells to stay round, flexible, and work well.

How Your Two “Books” Determine Your Hemoglobin Type

Normal Hemoglobin



Normal Instructions



You have two normal hemoglobin genes.

Sickle Cell Trait



Sickle Instructions



You have one normal and one sickle gene. **This is a carrier state.**

Sickle Cell Disease



You have two sickle hemoglobin genes. This is a disease.

An Evolutionary Advantage: The Malaria Connection

Sickle Cell Trait is inherited. It is more common in people whose families come from parts of the world where malaria was or is common, including parts of Africa, the Mediterranean, the Middle East, and India.

Carrying one copy of the sickle gene (having SCT) provides significant protection against severe malaria. This survival advantage is why the gene has persisted in these populations.



Planning for Your Family's Future

If you have Sickle Cell Trait and your partner also carries a sickle gene or a related hemoglobin gene, there are three possible outcomes for each child.



50% Chance: The child will have Sickle Cell Trait (like you).



25% Chance: The child will have normal hemoglobin.



25% Chance: The child will have Sickle Cell Disease.

Because of this, your doctor may recommend partner testing and suggest genetic counseling to provide clear information and support for your family planning.

For Everyday Life, You Are Healthy. For Extreme Conditions, You Are Prepared.

For most people, SCT is not dangerous and does not affect life expectancy. Your red blood cells function normally almost all the time. The sickle gene only becomes important in a few rare and specific situations.

**99% of the Time:
Normal, Healthy Function**



Rare, Extreme Conditions



- Very intense, all-out physical exertion (especially with dehydration)
- Exercising hard in high heat or humidity
- Sudden exposure to very high altitude (10,000+ ft)

Thriving in Your Sport: Smart Habits for Intense Exercise

Elite athletes with SCT compete at the highest levels. The key is not to limit your activity, but to train smart. These habits greatly reduce the risk of rare complications.



Stay well hydrated, especially during sports, hot weather, or illness.



Build up intense exercise gradually. Avoid jumping into all-out workouts.



Take regular rest breaks during hard training. Avoid “no-quit” drills that push you to ignore your body.



Tell your coaches, trainers, or military staff you have SCT so they can help you train safely.



Know the Warning Signs. Stop exercise immediately if you feel unusual muscle pain, severe cramps, extreme weakness, chest pain, or faintness.

Traveling Safely: A Guide to Altitude and Heat



High Altitude

- **Reassurance:** Most people travel safely to moderate altitudes (like ski resorts at 5,000-8,000 feet).
- **Precaution:** Rare problems can occur with very rapid ascent to very high altitudes (10,000+ feet), especially when combined with intense exertion.
- **Tip:** Acclimate gradually and avoid intense activity on the first days at very high elevations.
- **Symptom to Watch For:** Rarely, this can cause pain in the upper left abdomen (splenic infarction).



Heat and Dehydration

- **Core Principle:** Being overheated and dehydrated increases stress on the body for everyone, but it's especially important to manage with SCT.
- **Tip:** Focus on good hydration and take frequent rest breaks in a cool place when working or exercising in high heat and humidity.

Understanding Your Body: Kidney and Urinary Health

A few health considerations related to the kidneys can be associated with SCT. Knowing about them helps you partner with your doctor if they ever occur.



Blood in the Urine (Hematuria)

Some people may experience painless blood in the urine, sometimes triggered by dehydration or exercise. **Always see a doctor to have this evaluated**, as it can have many causes.



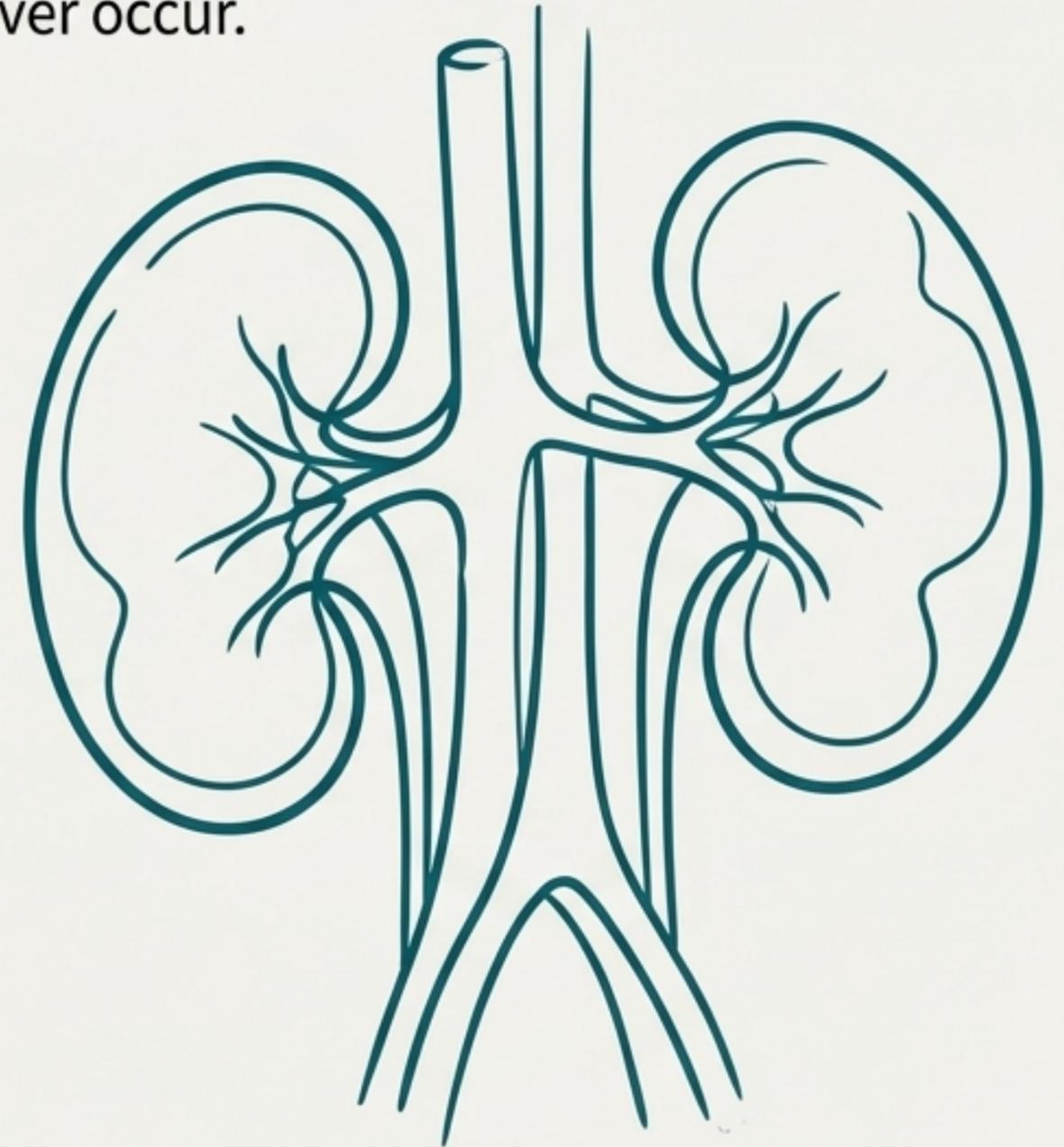
Frequent Urination

A few people may have a harder time concentrating their urine, leading them to urinate more often, especially at night. Drinking extra fluids is helpful.



Pregnancy

There may be a slightly higher risk of urinary tract infections during pregnancy. Discuss SCT with your obstetric provider.



When to Partner With Your Doctor

SCT does not require treatment, but you should contact your doctor for education, planning, or if specific symptoms arise.

Seek Care if You Experience...



- Collapse or chest pain during intense exercise.



- Severe muscle cramps that don't improve with rest and hydration.



- Blood in your urine (even if it comes and goes).



- New or worsening problems at high altitude, especially with left-sided abdominal pain.

Discuss With Your Doctor...



- Your personal and family health history.



- Your exercise, heat, and altitude exposure plans.



- Any questions about pregnancy, partner testing, and genetic counseling.



Your Sickle Cell Trait Toolkit: Knowledge and Habits for Life



3 Facts to Remember

1. Sickle Cell Trait is **not** Sickle Cell Disease.
2. You can live a full, healthy, and active life without restrictions.
3. **Risks** are very rare and Risks are very rare and are linked to specific, extreme conditions.



3 Habits to Adopt

1. **Hydrate well**, especially during exercise, heat, or illness.
2. **Pace yourself** during intense exertion and listen to your body's warning signs.
3. **Plan ahead** for high-altitude travel and family planning.



3 Conversations to Have

1. **Inform your coach/trainer** that you have SCT to ensure smart training.
2. **Discuss family planning** and partner testing with your doctor or a genetic counselor.
3. **Review any new, unusual symptoms** (like blood in urine) with your doctor promptly.