

# SICKLE CELL TRAIT AND THE ATHLETE

MIAA ATHLETIC HEALTH SERVICES

## What is Sickle Cell Trait?

It is an inherited blood mutation that affects red blood cells that normally has no symptoms. People with the trait carry only one copy of the abnormal sickle gene. People with sickle cell trait are generally healthy.

## What is the difference between Sickle Cell Anemia and Sickle Trait?

People with two copies of the abnormal sickle cell gene have sickle cell anemia, a serious, painful disease that can kill.

## What causes red blood cells to sickle?

Sickling can begin in 2-3 minutes of any all out exertion and can reach grave levels soon thereafter if the athlete continues to struggle or 'push to the limits.' Out of shape, heat, dehydration and asthma can increase the risk and worsen sickling.

## Why is knowledge about Sickle Cell Trait important to athletics?

During intense or extensive exertion, the shape of red blood cells can change from round to 'sickle' shaped. The sickle shape cell can jam the blood vessels setting up a situation where blood can't move freely to reach different parts of the body. As blood flow is blocked, parts of the body can't get enough oxygen. This can pose a grave risk for athletes as muscles and organs start to die.

## Are athletes with Sickle Cell Trait allowed to compete in athletics?

There is no contraindication to participation in sport for the athlete with sickle cell trait. **Most doctors agree that most people with sickle cell trait will never have a problem.** In rare circumstances, complications may result but lack of awareness and knowledge poses the biggest risk. Education and precautions work best.

## What precautions can I take to prevent exertional sickling?

First, encourage athletes to report any symptoms immediately. Any signs such as difficulty breathing, fatigue, leg or low back pain/cramping should assumed to be sickling. Instruct athletes to rest, sickle cells regain oxygen and most revert to normal shape, and the athletes may soon feel better and ready to continue. This self limiting feature saves lives.

Adjust work/rest cycles: training with pace progressions and longer rest and recovery. Emphasize hydration and heat stress prevention. Control asthma. No work outs when an athlete is ill. Watch out for performance test; if athletes can set their own pace, they seem to do fine.

## What are the signs of sickling collapse?

**Sickling collapse is a medical emergency.** They may slump to the ground with weak muscles saying "I can't go on." Athletes may complain of leg pain, back pain, muscle cramping, fatigue and shortness of breath. This is not to say all athletes present exactly the same.

## In the event of sickling collapse, what do I do?

Have an emergency action plan. Check vital signs. Cool the athlete, if necessary. If the athlete is "out of it" and/or as vital signs decline call 911. Tell EMS that the athlete is has sickle cell trait.

**REMEMBER IN RARE CASES THE TRAIT CAN CAUSE PROBLEMS. MOST MAY NEVER HAVE A PROBLEM. EDUCATE STAFF, COACHES AND ATHLETES ON THE POTENTIAL LETHAL NATURE OF THIS CONDITION. PRACTICE PREVENTION: AVOID DEHYDRATION, TEMPERATURE EXTREMES/HEAT STRESS AND EXHAUSTION. ENCOURAGE ATHLETES TO EMPLOY SELF LIMITING PRACTICES.**