



Sports Shorts

GUIDELINES FOR PARENTS, COACHES, ATHLETES

Sickle cell trait

What is sickle cell trait?

Sickle cell trait is an inherited, genetic problem resulting in abnormal production of a substance called hemoglobin. Hemoglobin helps red blood cells carry oxygen around the body. In sickle cell trait, abnormal hemoglobin causes some of the red blood cells to change their shape (from round to crescent or sickle shape) and makes it more difficult for them to move around the body and deliver oxygen. It is related to, but not as serious as, sickle cell anemia.

How common is it?

In the United States, sickle cell trait most often affects those of African, Middle Eastern and Mediterranean ancestry. It affects about 1 out of every 12 African-Americans and around 1 in 10,000 non-black Americans.

How can you tell if an athlete has sickle cell trait?

Most of the time, you can't, at least not by looking at them. In fact some athletes themselves are unaware that they have the condition. While sickle cell trait can cause symptoms with exercise under certain circumstances, there are many athletes at all levels of sports that have this problem and are able to compete successfully. However, it is important for athletes to be aware of their sickle cell status to help prevent complications. All babies in this country are now tested for sickle cell disease so parents and athletes should check with their doctor if they are unsure. If these records are unavailable there are other blood tests that can be done to make the diagnosis.

What kind of problems can athletes with sickle cell trait have?

Exercise, especially if it is intense or performed at high altitude, can cause red blood cells to change their shape (called sickling). When this happens, the red blood cells can get clogged in small blood vessels throughout the body and can't deliver oxygen to the tissues of the body very well. Sickling can damage an organ called the spleen, and lead to muscle breakdown which can cause the athlete to feel weak and collapse. In extreme circumstances, the byproducts of this muscle breakdown can produce kidney failure and heart rhythm problems which cause the athlete to die suddenly.

When are these problems most likely to occur?

- In practices more often than games
- During preseason workouts when it's hot and humid and athletes are out of shape
- During long distance running

- During bouts of repeated activity such as weightlifting or running sprints
- When adequate rest isn't given between activities
- At high altitude

What are the most common symptoms of sickling?

- Shortness of breath
- Fatigue
- Muscle pain or weakness (most commonly legs, buttocks and low back)
- The feeling that the athlete simply can't go any further

How should sickling in the athlete be treated?

- Stop activity
- Give oxygen
- Check vital signs
- Cool the athlete, if necessary

If improvement is not noted immediately or athlete is unresponsive:

- Call 911
- Start CPR including using an AED if available
- Get the athlete to the hospital as quickly as possible

What precautions can be taken to prevent sickling in the athlete?

- Take part in preseason strength and conditioning programs to maintain fitness
- Gradually increase exercise when starting to train
- Allow periods of rest between repetitive exercises
- Let athletes set their own pace during workouts
- Avoid performance tests such as mile runs and serial sprints
- Do not workout when feeling ill
- Do not exercise during periods of extreme heat and humidity
- Stay hydrated
- Be cautious when working out at high altitude and have oxygen available
- STOP activity if symptoms develop
- Teach coaches about the signs of sickling and encourage them to have athletes report symptoms immediately

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This information is available on the Ohio AAP website www.ohioaap.org