Sickle Cell Trait

Although sickle cell trait has recently drawn concern in sports, exercise is generally safe. With adequate awareness and education, the trait need not prevent excellent athletic performance. Most athletes finish their careers without complications. During intense exertion, however, the inherited condition can make red blood cells stiff, sticky and sickle shaped. These cells can obstruct blood vessels, depriving vital organs and muscles of oxygen. Athletes at every level may be affected, including high school, college, Olympic and professional competitors. Testing and an appropriate physician's examination before competition can help athletes maintain healthy careers.

Common Questions

What does sickle cell trait mean?

Sickle cell trait is usually harmless. A person inherits one gene for normal hemoglobin, the oxygen-carrying substance in red blood cells, and one for sickle hemoglobin. It differs from the more serious sickle cell disease, in which two sickle hemoglobin genes are inherited. People with the trait generally lead normal, healthy lives. Under extreme physical stress, such as that experienced by athletes, red blood cells may sometimes become sickle shaped and block vessels, depriving muscles and organs of oxygen. In most cases, however, people with the trait live healthy lives without complications.

How widespread is the trait?

About 8 percent of African Americans in the U.S. carry the trait. It is uncommon among Caucasians, affecting about 1 in 2,000 to 1 in 10,000. Athletes at any level, from high school to professional sports, may have it.

Do student-athletes need testing?

Student-athletes must give their school documented results of a prior sickle cell solubility test or be tested during their preparticipation medical examination. All newborns in the United States and many other countries are tested for the trait. Yet few people know they tested positive, because the trait is not considered life threatening for most people. Testing or documentation of an earlier result helps coaches and athletic trainers recognize athletes who may need precautions.

Can athletes with sickle cell trait compete?

Yes. Athletes with sickle cell trait should be able to compete. The trait poses a risk only in rare situations when athletes push their physical conditioning to its limits. Knowing their status and taking suitable precautions can help them pursue healthy, successful athletic careers.

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Resources on Sickle Cell Trait

- Sickle Cell Trait: Facts for Coaches
- Sickle Cell Trait: Facts for Student-Athletes
- NCAA Sports Medicine Handbook

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