Sickle Cell Trait

Sickle cell trait is the carrier state of sickle cell anemia. It is the result of inheriting one sickle cell gene and one normal gene. People with Sickle Cell Trait (SCT) usually do not have any of the symptoms of sickle cell disease (SCD), but they can develop symptoms under times of extreme stress, intense physical exertion and dehydration. These intense conditions cause the red blood cells to sickle and block the blood vessels, which causes the symptoms.

Symptoms of Sickle Cell Disease include:
- Muscle cramping
- Pain
- Swelling
- Weakness
- Difficulty breathing
- Fatigue

SCT and Athletes

Some people with SCT have been shown to be more likely than those without SCT to experience heat stroke and muscle breakdown when doing intense exercise, such as competitive sports or military training under unfavorable temperatures (very high or low) or conditions. Studies have shown that the chance of this problem can be reduced by avoiding dehydration and getting too hot during training.

People with SCT who participate in competitive or team sports (i.e. student athletes) should be careful when doing training or conditioning activities. It is important that you:

- Set your own pace
- Participate in a slow and gradual preseason conditioning regimen
- Allow for adequate rest and recovery between repetitions
- Do not urge all out exertion beyond 2 to 3 minutes without a breather
- Stop activity immediately if struggling
- Exclude performance tests such as mile runs, serial sprints
• Stay well hydrated at all times
• Maintain proper asthma management
• Refrain from extreme exercise during acute illness, if febrile
• Have access supplemental O2 at high altitudes as needed
• Seek prompt medical care if experiencing unusual distress

Ambient heat stress, dehydration, asthma, and altitude predispose the athlete with sickle cell trait to an onset of crisis in physical exertion
• Adjust your work/rest cycles for environmental heat stress
• Maintain your hydration
• Control your asthma
• Do not work out if you are ill
• Watch yourself when at a new altitude. Modify your training and have supplemental oxygen available for competitions

Web links for more information:
• Web MD: http://www.webmd.com/pain-management/tc/sickle-cell-trait-topic-overview
• CDC: http://www.cdc.gov/ncbddd/sicklecell/traits.html

If you are a registered Millersville University student and you have questions or you need to make an appointment, please call Millersville University Health Services at 872-3250.

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