**What is Sickle Cell Trait?**

Sickle cell trait (SCT) is a genetic disorder that occurs when you receive one normal hemoglobin (A) gene and one sickle hemoglobin (S) gene. Your red blood cells, which deliver oxygen throughout the body, have a round shape. However, when you have one sickle hemoglobin gene the structure of the red blood cells can change into a sickle/crescent moon shape when they are deprived of oxygen - such as during bouts of intense physical exertion. When this occurs, the blood cells can get tangled with one another and create a block in blood vessels depriving vital areas of the body of blood and oxygen. Sickling can begin in just 2-3 minutes of any intense physical activity and in rare cases can lead to a sickling collapse and potentially death. This can be exacerbated by altitude, heat, dehydration and asthma.

![Sickle cells](image)

Fortunately, when certain precautions are taken (see below), athletes with SCT can safely participate in every sport. For this reason, it is important to know if you have SCT. Everyone in the United States is tested at birth and you may be able to get documentation of your status by contacting the hospital you were born in or your pediatrician. If you are unsure of your status, it is strongly recommended that you get screened prior to participating in competitive athletics. While anyone can be affected by SCT, the incidence rate is highest amongst African Americans as well as those who have descendants from the Mediterranean, South and Central America, the Middle East, India and the Caribbean.

**Precautions for the Athlete with SCT**

Taken from the NATA’s *Consensus Statement: Sickle Cell Trait and the Athlete*

- Athletes with SCT must be able to set their own pace.
- Build up slowly in training with paced progressions, allowing longer periods of rest and recovery between repetitions.
- Participate in pre-season strength and conditioning programs to enhance preparedness. All athletes with SCT should be excluded from participation in performance tests such as mile runs, serial sprints, etc, as several deaths have occurred from participation in this setting.
- Cease all activity with onset of muscle cramping, pain, swelling, weakness, tenderness, inability to catch breath, or fatigue. Report any of these symptoms immediately.
- If performing repetitive high speed sprints and/or interval training, allowed extended recovery between repetitions.
- Remember that certain conditions can accelerate the sickling process. Ambient heat stress, dehydration, asthma, illness, and altitude predispose the athlete with SCT to onset of sickling crisis with physical exertion. Make the following adjustments when appropriate:
  - Adjust work/rest cycles
  - Emphasize hydration
  - Control asthma
  - Do not allow an athlete with SCT to work out if ill
  - Watch closely if new to altitude. Modify training and have supplemental oxygen available.
Additional information can be found at: